STUDENT-CENTERED LEARNING AND PEDAGOGICAL CHOICE IN THE AMERICAN COLLEGE CLASSROOM: PERSPECTIVES FROM INTERNATIONAL TEACHING ASSISTANTS

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ABSTRACT

Sharon LaBurt Shofer: Student-centered learning and pedagogical choice in the American college classroom: Perspectives from international teaching assistants
(Under the direction of Xue Lan Rong)

Most colleges and universities in the United States use international teaching assistants (ITAs) in many of their lower level or introductory courses, particularly in science, technology, engineering, and mathematics, where there is often a shortage of American graduate students (Anderson, 2013; National Foundation for American Policy, 2017). Since the1980s, colleges and universities across the United States have implemented ITA training programs designed to help ameliorate the perceived cultural and linguistic differences between American undergraduate students and ITAs, and ITA training programs have since evolved from having a largely linguistic focus to including elements of intercultural communication, intercultural competence, and pedagogy (Zhou, 2009). Concurrently, there has been an evolution in thought and practice regarding instruction in higher education, as researchers and educators have sought to move away from traditional teaching models and toward student-centered learning (SCL) as a pedagogy that promises to engage more learners at a deeper level (Gibbs & Coffey, 2004; Lea et al., 2003). In an effort to reflect best practices and the stated preference of university administrations, many didactic training programs intended for graduate teaching assistants, including ITA specific programs, have increased emphasis on SCL methods. Although whether ITAs decide to appropriate SCL methods when they teach is subject to many factors, few scholars have studied the appropriation of SCL pedagogy by ITAs after a training program. In

order to gain insight into the factors that may be influential in the adoption of SCL by ITAs, I conducted a qualitative, descriptive, collective case study of eight ITAs after they completed an ITA training class. Data collection included semi-structured interviews, observations, and document analysis. Cultural-historical activity theory (Kaptelinin, 2005) was used to explain how the mental functioning of an individual is related to and influenced by the cultural, institutional, and historical contexts in which the individual lives, along with their pre-existing schema.

For Scott, Noah, Nick, and Nate. You are my loves and my life.
Thank you for all of your love and encouragement along the way.

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I am thankful for the love and inspiration that my mother, Mara LaBurt, provides me. She has taught me by example to never stop learning, and never stop doing. At 86 years old she is working on her second-degree black belt in tae kwon do and walks 6 miles almost daily. She is all the proof I need that age is just a number.

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LIST OF ABBREVIATIONS

AE	Academic Entitlement
AL	Active Learning
CHAT	Cultural-Historical Activity Theory
ITA	International Teaching Assistant
SCT	Sociocultural Theory
SCL	Student Centered Learning
STEM	Science, Technology, Engineering, and Math
TFITA	Training for International Teaching Assistants
TOEFL	Test of English as a Foreign Language
TA	Teaching Assistant

CHAPTER 1: INTRODUCTION

Background of the Problem: ITAs and Student-Centered Learning

The rise in the number of international teaching assistants (ITAs) in U.S. colleges and universities since the 1970s is well documented (Williams, 2011); it has often been accompanied by a perception among the undergraduates that work with ITAs that they are not good teachers due to perceived linguistic, intercultural, or pedagogical deficiencies (Bailey, 1982; Fitch & Morgan, 2003; Orth, 1982; Subtirelu, 2015), an issue which has been dubbed "the ITA problem" (Bailey, 1982). In response, many U.S. colleges and universities in have created programs to train ITAs to teach effectively in their classrooms. These training programs vary from institution to institution in both duration and content (Zhou, 2009). Despite this curricular variability, most programs have evolved from a primarily linguistic focus to include elements of intercultural communication, intercultural competence, and pedagogy. The importance of these elements in training ITAs has been documented in studies demonstrating improvement in ITA teaching experiences following a training program (Tang & Sandell, 2000).

At roughly the same time that the number of ITAs has increased, there has been a call for increasing the use of student-centered learning (SCL) in the United States in both K–12 and higher education settings. As a pedagogical approach that focuses on the needs of the student—in contrast to the traditional, teacher-centered model of education (Iiyoshi et al., 2005)—SCL has been hailed as the pedagogical answer to an increasingly diverse student population (Eddy & Hogan, 2014; Haak et al., 2011; Lea et al., 2003). In the context of higher education in the United States, there has been a particular effort to increase the use of SCL in the fields of

science, technology, engineering, and mathematics (STEM) in response to not only a more diverse student population but also the need to recruit and retain more American students (Ambrose, 2019).

Efforts to increase the use of SCL in higher education in the United States have met with limited success (Conti, 2004; Eagan et al., 2014; Hurtado et al., 2012), despite empirical evidence of its effectiveness (Armbruster et al., 2009; Carlson & Winquist, 2011; Freeman et al., 2014; Kurdziel et al., 2003; Tsui & Gao, 2006; Ueckert et al., 2011; Weltman & Whiteside, 2010). Research into the causes of SCL's limited implementation in higher education has revealed a variety of impeding factors, including a lack of training, incentives, time, and departmental support (Brownell & Tanner, 2012; Eddy & Hogan, 2014; Gibbs & Coffey, 2004), and the influence of the instructor's educational history (Austin, 2002; Ekroth, 1990). Additional research examining educational approaches along SCL lines at the undergraduate level has found that academic discipline also plays an important role in its adoption and use (Laird et al., 2008). In a study specific to ITAs, researchers found that ITAs' educational background and discipline heavily influenced their teaching (Luo et al., 2001).

Despite the slow-moving pace of SCL adoption in higher education in the United States, it continues to be the focus of educational reform (Ambrose, 2019). In an effort to prepare ITAs for teaching in the U.S. higher education setting, some ITA training programs have emphasized SCL pedagogy and methods in their curricula. Having been a GTA myself in one such semester-long class (the Training for International Teaching Assistants [TFITA] program at Regional University), I became interested in how ITAs themselves conceived of SCL and its associated practices. During the program, ITAs learned about the pedagogy involved with SCL, the research that supports its use, and tips for how to deploy it in their own teaching. During multiple

microteaching sessions, they were required to use SCL methods—specifically, active learning—to teach the class a lesson in their field. Despite these efforts, previous research has shown that ITAs have had difficulty implementing SCL methods after the completion of the program (Christian, 2014). My own in-class discussions with ITAs revealed a notable amount of pushback from some ITAs on the use of SCL, even before they had started teaching. What especially piqued my interest in the topic, however, was the discussions I had with ITAs from the program after they had begun serving as teaching assistants in Regional University courses. Some of the ITAs who had been most enthusiastic about SCL and were using it in their teaching would come back to me and talk about how difficult they found it to implement. Upon hearing their stories, I looked for research to see if this was a widespread issue. What I found on the subject of ITAs and their use of SCL was very limited, and there was an even greater paucity of research from the viewpoint of ITAs themselves. Ultimately, I found that the extent to which ITAs decide to appropriate these methods for use in their own teaching has been the focus of a very limited number of studies.

Cultural-Historical Activity Theory

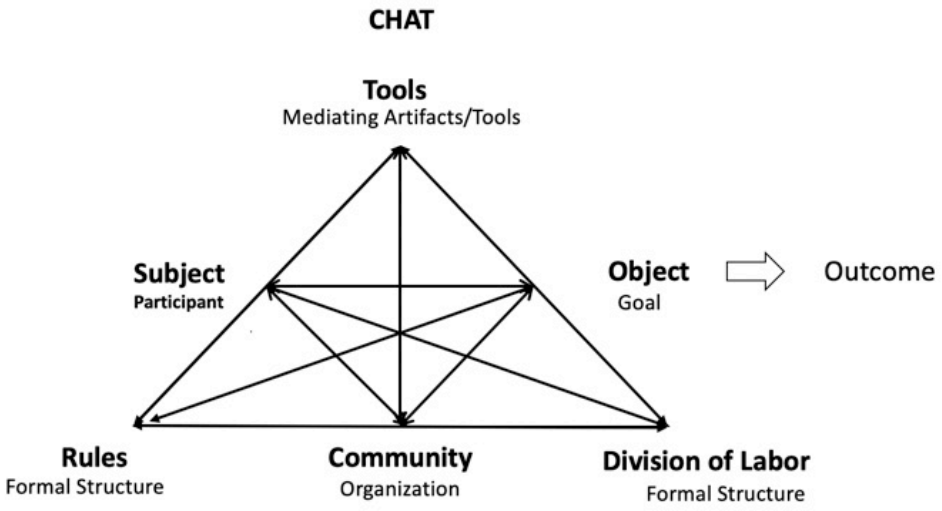
In this study I examine how, after participating in an ITA training program emphasizing SCL methods, ITAs perceive and understand the factors involved in their use of those methods. The use of cultural-historical activity theory (CHAT) to examine those factors enables me to view the complex interactions between ITAs, their sociocultural histories, and the influence of their studies, departments, and undergraduate students.

CHAT, an extension of Lev Vygotsky's sociocultural theory of learning, has been used to examine teacher education in a wide range of contexts (Grossman et al., 1999) and can be employed to approach a variety of issues in classrooms that contain students and educators of

diverse backgrounds. Because of the centrality of language, culture, and prior educational experience in ITA training programs, CHAT is particularly useful in examining how ITAs negotiate their teaching practices in U.S. higher education classrooms. One of CHAT's key features is its focus on identifying systemic contradictions and tensions in an effort to examine how they can drive transformation and change (Yamagata-Lynch, 2010). In CHAT theory, tensions are thus not necessarily negative; whether a given tension is ultimately negative or positive is determined by its impact on the outcome of a process. By examining the six elements of the change process that make up CHAT as seen in Figure 1 —*subject, object*, mediating artifacts (or *tools*), *rules*, *community*, and *division of labor*—I seek to expose the tensions in the study participants' teaching processes. Chapter Two will provide more details on CHAT and the role of tensions in the systemic process. By using CHAT, I aim to identify what the ITAs themselves view as the factors, or tensions, that limit their use of SCL in teaching, as well as the possible factors that support its use.

Figure 1

Cultural-Historical Activity Theory



Purpose of Study

There has been little research to date which explores factors from the perspective of ITAs that may affect ITAs' appropriation of SCL-based pedagogical tools in their teaching. The purpose of this study is to understand which factors may affect ITA appropriation of SCL-related pedagogical tools in their teaching following their participation in a course designed to prepare them to teach in a college classroom in the United States. This is not an intervention study, and encouragement of the ITA participants to appropriate certain course-related pedagogical tools is not the study's purpose. In studying the experiences, pedagogy, and perspectives of ITAs through the use of CHAT, I seek to shed light on the systemic tensions that influence ITAs' teaching decisions. I hope to add to the body of literature on SCL use by ITAs and on the applicability of CHAT to ITA research.

Research Questions

This study is guided by the following research questions:

Question 1: How do ITAs and former ITAs decide what conceptual and practical tools to appropriate in their teaching practice?

Question 2: What do ITAs and former ITAs perceive as the factors involved in their appropriation of SCL tools (both conceptual and practical) to use as instructors in U.S. classrooms?

To explore these questions, I completed a case study of seven current ITAs and one former ITA (now a post-doctoral fellow at another university) after their participation in an ITA training program at Regional University, a research-intensive university in the southeastern United States. All ITA participants had taught at least one undergraduate class after their participation in the training program, and the study focused on their perceptions of factors that

either helped or hindered the use of SCL in their teaching. A more detailed discussion of both Regional University and the ITA training program is provided in Chapter Three.

I used a qualitative case study because of the complex process involved in a specific setting (Marshall & Rossman, 1999). Data collected included ITA interviews, observations of participant-led classes, review and analysis of participant microteaching assignments and document analysis of the ITA training program syllabus and curriculum. Data were analyzed multiple times using the constant comparative method, first through open coding (Glaser & Strauss, 1967), then axial coding (Corbin & Strauss, 2008), and finally selective coding, once I had identified the core family of codes that were most relevant to the study (Strauss, 1987). In using CHAT as an analytical tool, I took the codes that emerged from the selective coding step and identified themes that fit into the elements of CHAT. Chapter Three provides more specifics on study methods.

Chapter Four looks broadly at the experiences of all eight ITAs in using SCL in their teaching and uses CHAT as a lens through which to view the tensions they experienced in its use. In Chapter Five, I take a deep dive into the experiences and perceptions of three participants in order to provide a richly detailed description of the participants' experiences in their own words. Finally, in Chapter Six, I pull the lens back to examine the findings across the participants' experiences within the CHAT framework, seeking to illuminate the tensions that ITAs perceived when making their teaching decisions regarding SCL and to situate the findings within current research on both ITAs and the use of SCL in higher education in the United States. Chapter Seven offers implications and recommendations for ITA programs and the use of SCL in higher education.

CHAPTER 2: REVIEW OF THE LITERATURE

In this literature review I will cover the two central aspects of the proposed study, ITAs and student-centered learning (SCL), followed by a description of the theoretical framework that I used to frame this study. I will begin the first section on ITAs with the literature documenting the rise in ITAs in the American higher education setting, along with the cultural and pedagogical challenges they face as instructors, followed by ITA training programs designed to ameliorate those challenges. I will then move on to the second section, the literature and research regarding student centered learning (SCL) in the American higher education setting. Beginning with its origins and moving to its use across disciplines in higher education, this review will then look at the influence of academic and educational culture on the use of SCL in that setting. Finally, I will discuss Cultural-Historical Activity Theory (CHAT) as the theoretical framework I will use to frame and analyze the ITAs perceptions of influences on their teaching decisions in this study.

International Teaching Assistants

While the overall rate of international graduate students has declined since the 2016 U.S. elections (Hazelrigg, 2019), there remains a large number of international graduate students responsible for teaching undergraduates in the United States. In addition to providing diversity and intercultural experiences for American students, international graduate students in the United States have increasingly filled an important role in higher education as qualified students, especially in the STEM fields. According to a 2017 policy brief for the National Foundation for American Policy (NFAP), international students often make up a significant majority in many

US graduate school STEM programs. As an example of scope of U.S. universities' dependence on international graduate students, the NFAP provides the following statistics for overall foreign national, full-time graduate students in selected STEM fields:

> Foreign nationals account for 81 percent of the full-time graduate students in electrical engineering and petroleum engineering, 79 percent in computer science, 75 percent in industrial engineering, 69 percent in statistics, 63 percent in mechanical engineering and economics, 59 percent in civil engineering and 57 percent in chemical engineering. (p.1)

Researchers contend that these international graduate students provide a key source of talent for U.S. universities to conduct research and offer high quality academic programs to U.S. students (Anderson, 2013; Chellaraj et al., 2008; National Foundation for American Policy, 2017).

As the number of international graduate students has risen, from 95,000 in 1980 (Anderson, 2013) to over 367,000 in 2017 (National Science Board, 2018), colleges and universities have increasingly relied on ITAs to fulfill many of the teaching responsibilities of their undergraduate students. Issues with ITAs are perhaps made more visible by the fact that they comprise a much larger percentage of all graduate teaching assistants in comparison to international faculty. By 2016 non-resident aliens (and hence, ITAs) made up 30% of all graduate assistants at U.S. institutions, while non-resident aliens only compromised 4% of all U.S. faculty (National Center for Education Statistics, 2017). Due to this discrepancy, significantly more American undergraduates are being taught by ITAs than international faculty. With the knowledge that all graduate students are still novice-level teachers by most standards (Douglas et al., 2016) it would follow that American undergraduates might attribute negative learning experiences with ITAs as linguistic or cultural, and not consider that it might be the

inexperience of the ITA. This disconnect between the expectations of undergraduates and the inexperience of their ITA instructors poses a continued challenge for ITA training programs.

The ITA "Problem"

Concomitant with the rise in ITA numbers, the literature in the 1980s began to reflect what at the time was known as the "foreign TA problem" which then evolved into the "ITA problem" (Bailey, 1982; Orth, 1982). While many in higher education view the increase in international graduate students in a positive light, not all have seen it in this way. It has been well documented that many U.S. undergraduate students find their ITAs inadequate in their roles as teachers. The complaints of undergraduates, and their parents, centered on what the students felt was the unintelligibility of the ITAs English language, as well as their pedagogical skills (Bailey, 1982; Brown, 1988; Marchetti-Bowick, 2015). Dissatisfaction, often coming in the form of angry letters to the editor of the local newspaper (Thomas & Monoson, 1993) was at a high enough level that beginning in the 1980s state politicians and trustees and college presidents began to respond to escalating opposition and dissatisfaction on the part of students and parents with ITAs by mandating language proficiency standards for both foreign-born faculty and ITAs at the higher education level (Smith, 1992; Thomas & Monoson, 1993). Beginning with Oklahoma in 1982 (Thomas & Monoson, 1993), the number of states with mandates enforcing the level of English language ability of ITAs stood at twenty-two by 2005 (Finder, 2005). Additionally, many colleges and universities, feeling the pressure to account for perceived inadequacies, have implemented language guidelines and programs for their ITA students (Thomas & Monoson, 1993).

Despite these mandates from both state and institutional bodies, there continues to be dissatisfaction by undergraduates when they are taught by ITAs (Zhou, 2009). A review of the

literature reveals that research into the "ITA problem" can be categorized into two overall themes: The "ITA problem" as a function of undergraduate student perception, and the "ITA problem" as a function of ITA-centered language, sociocultural, and pedagogical challenges.

Early on several research studies found that many of the negative feelings that undergraduates had with their ITAs lay in the undergraduates' student perceptions of the ITAs. Orth (1982) and Bailey (1982) found that undergraduates' negative and ethnocentric-based *perceptions* of the ITAs' language and culture was at the root of their dissatisfaction with ITAs. A later study by (Brown, 1988) found positive correlations between the students' perception of the lecturer's country of origin and the undergraduates' evaluation of the lecturer's language competence and teaching status. In acknowledging the student-centered causes of the ITA problem, some researchers suggested that this paradigm of undergraduate discomfort with the "foreignness" of their ITAs is a prime reason for colleges and universities to utilize ITAs in an effort not only to provide much needed undergraduate instruction and expertise in their field, but to provide the diversity and intercultural experiences for undergraduates with little experience with other cultures (Pialorsi, 1984). In a later study, Neves and Sanyal (1991) found that while the American students rated their foreign-born instructors highly as regards their knowledge and social skills, they ranked them low for communication skills and teaching ability.

The second general theme in the "ITA problem" literature focuses on what can be termed "ITA-centered challenges." This literature, while not dismissing the importance of student perceptions of ITAs, focuses on challenges for ITAs in teaching in the American classroom.

ITA Cultural and Pedagogical Challenges

Most researchers find three sub-themes that are most important in classifying challenges for ITAs: linguistic, sociocultural, and pedagogical challenges (Hoekje & Williams, 1992). Due

to their centrality in the proposed study, the literature focusing on the sociocultural and pedagogical challenges faced by ITAs will be highlighted.

The confluence of academic culture and sociocultural beliefs has a strong influence on how an ITA teaches in the classroom. Differences in beliefs about academic norms and behaviors can hinder learning and overall learning outcomes in the ITA's role as a student as well as an educator (LeGros & Faez, 2012). Despite the public perception that the ITA problem is one centered on the ITAs' linguistic difficulties (Brown et al., 1990), Landa and Perry (1984) went so far as to say that sociocultural differences in the classroom are the primary basis for ITAs' failure as instructors. While Stevens (1989) found few overt attitudinal differences toward underlying educational values between ITAs and American undergraduates, other studies reveal that the differences between cultures, especially the culture of the classroom, have a great effect on ITA effectiveness (Bauer, 1996; Ross & Krider, 1992; Schneider & Stevens, 1991).

Early studies revealed the importance of sociocultural factors in ITA classroom performance and undergraduate student satisfaction, as when a study found that ITAs utilizing an ITA-culturally congruent authoritarian teaching approach were more likely to cause resentment among their students (Landa & Perry, 1984). The difficulty for ITAs in understanding the sociocultural context of the American higher education classroom can also cause misunderstandings for the ITA, such as when the individualist nature of the American education system and American undergraduates can cause misunderstandings in the classroom for ITAs from more collectivist cultures (Ryckman & Houston, 2003). Similarly, Wanta (2003) found that ITAs from more traditional educational cultures where students are not encouraged to ask questions of teachers may be unsettled by the American classroom where students are encouraged to be critical thinkers and ask many questions of the instructor. ITAs from

educational cultures that are more hierarchical in nature might also misinterpret the friendly rapport of American undergraduates as a lack of respect for the ITA (Zukowski-Faust, 1984), although all of the ITAs in Ross and Krider's (1992) study not only accommodated to this difference but felt that it led to a positive didactic environment.

The lack of understanding about the American educational system and what Americans are expected to know upon entry to college can also contribute to low ITA expectations for American undergraduates as the ITAs can perceive them to be unprepared and unqualified (Bresnahan & Cai, 2000; Ross & Krider, 1992). Ross and Krider (1992) found that when ITAs had the time and opportunity to observe American undergraduates' classes before beginning a role as an instructor it helped the ITAs to understand and adjust to the classroom culture they would be expected to teach in.

While some ITAs have experience teaching in their home countries (Hoekje & Williams, 1992), the academic culture and pedagogy they are used to are often in conflict with those in the United States. When ITAs do not attempt to modify their teaching style to one more congruent with the American higher education environment, it can lead undergraduates to consider them as "mechanical problem-solvers" (Bailey, 1982, p. 113). Additionally, research by Luo, Grady, and Bellows (2001) has found that ITAs are more likely to view their role in the classroom as a dispenser of information rather than as that of a facilitator, the SCL-based model that is more prevalent in the American academic culture.

Specific teaching techniques also affect ITA performance. Tyler (1992) found that ITAs who do not consistently orient their students to the importance of specific ideas that they are teaching are not as successful as those who do. Hoekje and Williams (1992) state that while "most ITAs are well prepared in their disciplines" they still have difficulties transmitting this

knowledge to their students (p. 256).

ITA Training Programs

Many colleges and universities started to create and implement training programs for their ITAs as early as the 1970s (Bailey, 1982). The impetus for this was pressure from some vocal American undergraduates, concerned parents, and often politicians who complained that foreign teaching assistants were not providing undergraduates with a quality education (Smith, 1992). At the same time, colleges and universities were realizing their dependence on ITAs for research as well as teaching, By the early 1990s there appeared to be a consensus in the field that training for ITAs should include culture, pedagogy, and language; however there was little agreement about the relative importance of each (Hoekje & Williams, 1992).

Zhou (2009) identified three phases in the development of curriculum for ITA training programs beginning in the 1980s and continuing into the present. During the first phase in the late 1970s and early 1980s, most ITA programs emphasized development of ITA oral English proficiency and deemphasized pedagogy with the belief that if a graduate had enough content knowledge to gain admission to the university, they had enough knowledge to teach it. A second phase emerged in the mid-1980s in which ITA training programs emphasized pedagogy and American culture. During this phase, Bauer (1996) found that the areas were being emphasized in ITA training programs were: 1) understanding instructional roles, 2) understanding the American academic setting, 3) learning about and becoming familiar with interactive teaching methods, 4) sociocultural norms such as interpreting student behavior and feedback in the classroom. The third phase, as identified by Zhou (2009), began in the late 1990s and continues to the present, emphasizes learning as a shared responsibility while integrating pedagogical, linguistic, and cross-cultural knowledge and skills (Kaufman et al., 2006).

During this time, researchers have conducted various types of studies regarding ITA training programs, with many of the studies focusing on the same institution conducting the training program (Christian & Rybarczyk, 2013; Gorsuch, 2006; Ross & Krider, 1992). The focus of the of the studies on ITA training also varies, from importance of explicitly highlighting intercultural communication (Meadows et al., 2015), to the use of drama as pedagogy (Stevens, 1989), the language and teaching skills of the ITAs (Moder & Halleck, 1998), using social-psychological interventions between undergraduates and ITAs (Kang et al., 2015), the use of microteaching in the ITA curriculum (LeGros & Faez, 2012), and to role-playing student-instructor interactions (Reinhardt, 2007). The specific needs of various disciplines in relation to ITA training has also been studied by Gorsuch (2006), who looked at discipline-specific practice and trainings for disciplines such as chemistry, math, and biology.

In line with Zhou's (2009) third-phase of ITA training programs are those programs that emphasize development of the ITAs in their identity as teachers. These programs include pedagogical training utilizing constructivist-development frameworks with longer-term goals to benefit the ITAs in their teaching practice (Swan et al., 2017). Research has found that ITAs who participated in ITA specific training programs scored higher in teaching effectiveness and had a better understanding of classroom expectations that did ITAs who participated in training programs designed for all GTAs (Meadows et al., 2015). Despite this, the cultural and pedagogical backgrounds of many ITAs provide an additional set of challenges affecting perceptions of and adoption of SCL-based teaching methods (Chen, 2019; Swan et al., 2017).

Student-Centered Learning

The educational paradigm termed student-centered learning (SCL), also known as learner-centered education, has become the norm for most education research and design ranging

from PreK-12 to higher education settings. SCL is an approach to pedagogy that concentrates on students' needs, as opposed to a top-down model in which the institution or institutional process determines the students' needs, including how and what they will learn (Iiyoshi et al., 2005). As a pedagogy, SCL includes a wide variety of teaching methods, including active learning, cooperative group, and the integration of self-paced learning programs (Iversen et al., 2015), as well as the re-framing of the teacher as a co-creator of knowledge (Atweh, 2010; Estes, 2004). These examples belie the behavioral, social, and educational backgrounds of the theorists responsible for the development and continued work on SCL, its implications and its tenets (Breen et al., 2009). See Appendix B for comparison chart of teacher-centered and student-centered learning characteristics.

Origins and Development of SCL

Several theorists from varying disciplines have been primarily responsible for the advent, implementation, and continued research into SCL over the last century: John Dewey (Dewey, 1947), Jean Piaget (Piaget, 1973), Carl Rogers (Rogers, 1951), and Lev Vygotsky (Vygotsky, 1978). While the background of these four theorists range from the behavioral, social, and education disciplines, they were all concerned with understanding how people learn (von Glaserfeld, 1993). While there are differences among them in theory and belief, they contain common elements including beliefs such as teaching is not equal to learning, students need to be active participants in their education, a less hierarchical power dynamic between teacher and student is beneficial for the student, higher cognitive learning is social in nature, students need to understand expectations and are encouraged to use self-assessment, and finally, that learning needs to be meaningful for the student (Atweh, 2010; Estes, 2004). SCL as a paradigm stands in contrast to what has been thought of as traditional, teacher-centered education (Atweh, 2010).

Traditionally, instructors were the center of learning and were seen as the disseminators of information (the “sage on the stage”), while the student role was one of passive reception (Bruner, 1961). Examples of traditional, teacher-centered education include teaching through lecture, an emphasis on acquisition of knowledge outside of context, summative assessments, individualism and a competitive learning setting, and little student input over course content (Huba & Freed, 2000). Table 1 on the following page provides a comparison of traditional teacher-centered and student-centered paradigms, while Table 2 provides examples of commonly used SCL-based methods of instruction, particularly in higher education

Table 1

Comparison of Teacher-centered and Student-centered Paradigms

Comparison of Teacher-centered and Student-centered paradigms*	
Teacher-centered paradigm	**Student-centered paradigm**
Knowledge is transmitted from professor to students	Students construct knowledge through gathering and synthesizing information and integrating it with the general skills of inquiry, communication, critical thinking, problem solving and so on
Students passively receive information	Students are actively involved
Emphasis on acquisition of knowledge outside the context in which it will be used	Emphasis is on using and communicating knowledge effectively to address enduring and emerging issues and problems in real-life contexts
Professor's role is to be primary information giver and primary evaluator	Professor's role is to coach and facilitate Professor and students evaluate learning together
Teaching and assessing are separate	Teaching and assessing are intertwined
Assessment is used to monitor learning	Assessment is used to promote and diagnose learning
Emphasis on right answers	Emphasis is on generating better questions and learning from errors
Desired learning is assessed indirectly through the use of objectively scored tests	Desired learning is assessed directly through papers, projects, performances, portfolios, and the like
Focus is on a single discipline	Approach is compatible with interdisciplinary investigation
Culture is competitive and individualistic	Culture is cooperative, collaborative, and supportive
Only students are viewed as learners	Professor and students learn together

From Huba and Freed (2000), Learner centered assessment of college campuses

Table 2

Examples of Student-Centered Learning Methods

Examples of Student-Centered Learning Methods	
Method	Examples
Active learning	Students solve problems, answer questions, formulate questions of their own, discuss, explain, debate, or brainstorm during class
Cooperative learning	Students work in teams on problems and projects under conditions that assure both positive interdependence and individual accountability
Inductive teaching and learning	Students are first presented with challenges. Inductive methods include *inquiry-based learning*, *case-based instruction*, *problem-based learning*, *project-based learning*, *discovery learning*, and *just-in-time teaching*.

Source: NC State University College of Engineering "Learner-Centered Teaching" https://www.engr.ncsu.edu/stem-resources/legacy-site/learner-centered/

Critiques of SCL

Although widely associated with progressive, liberal thought, SCL has been criticized under the constructivist umbrella by some as a Eurocentric class-based pedagogy that was developed in the privileged classes and does not meet the needs of culturally diverse students (Richardson, 2003). Because much of the pedagogy inherent in SCL methods is predicated upon student knowledge of socially constructed and culturally normed knowledge *before* entrance into the learning setting, there are those that argue that students from culturally diverse backgrounds who do not have access through explicit instruction to the "culture of power" that is at the foundation of SCL are excluded from not only direct educational opportunities, but also from being taught about rules of power that they need to successfully navigate the education setting

(Delpit, 1988). In Delpit's words,

> Many liberal educators hold that the primary goal for education is for children to become autonomous, to develop fully who they are in the classroom setting without having arbitrary, outside standards forced upon them. This is a very reasonable goal for people whose children are already participants in the culture of power and who have already internalized its codes. (p. 285)

Delpit goes on to argue that a "silenced dialogue" of culturally diverse teachers exists regarding what culturally diverse students need to be successful in the dominant culture, which is subsumed to white researchers' beliefs about what best practices are for all students. She suggests that while some elements of a progressive SLC-type pedagogy can be utilized for culturally diverse students, to be successful in the dominant culture they must be allowed to learn the explicit set of skills and codes that students from the dominant culture come to school already knowing.

In a perspective that crosses national borders and at the same time reveals tensions about the universal applicability of SCL, other scholars, particularly those from other cultures of belief about education (Kanu, 2005; Nguyen et al., 2006, 2009) have argued that there is a "false universalism" and Eurocentric hegemony (Nguyen et al., 2009; Schweisfurth, 2013) behind constructivist-based SCL pedagogy. Arguing from a neocolonial perspective, Nguyen et al. (2009) conclude that the hegemony and market-based neocolonial power of Western cultures has imposed educational pedagogy, such as SCL, in Asian contexts in which it is culturally inappropriate and ineffective for students in those countries due to a mismatch in Eastern and Western beliefs about knowledge and education. Similar to Delpit's belief about the dangers of unquestioned implementation and "silenced dialogue" Nguyen et al. (2009) problematize "the

wholesale adoption of Western education theories and practices" (p. 15) and argue that "research that locates educational practices within a specific culture, at the level of classroom, school and system" (p. 15) is needed to respond and educate students across cultures. In place of unquestioned implementation of SCL, (Schweisfurth, 2013) recommends conceptualizing and implementing SCL and learner-centered [sic] education pedagogy on a culturally relevant continuum in order to not only be responsive to those cultures, but to have it be relevant and effective for students in those settings.

SCL in Higher Education Settings

While some constructivist-based SCL-type practices have been utilized in the US higher education context for over 100 years, it has not enjoyed widespread attention or implementation until the late twentieth century (Brown, 2008) when the nature of the student population attending college began to change on a large scale in terms of gender, class, and race leading to increased student diversity. By shifting the focus of education from the teacher to the student, proponents of SCL claim that it possesses the components to address and accommodate the increased diversity of student needs that accompanies an increasingly diverse student population (Eddy & Hogan, 2014; Haak et al., 2011; Lea et al., 2003).

In the fields of science, technology, engineering and math (STEM fields), there has been a concerted effort to use SCL in the U.S. higher education context. In a 2019 House Science Committee hearing to discuss ways the United States could maintain leadership in the fields of science and technology in the face of foreign competition, experts in the field emphasized the dual importance of welcoming students and researchers from abroad along with the need for the United States to better develop domestic talent (Ambrose, 2019). Despite the need, efforts made to recruit U.S. graduates into STEM fields , and then have them complete their degree, have met

with limited positive results, as less than 40% of students who enter college with an interest in a STEM field, and 20% of underrepresented minority students, will graduate with a STEM degree (Freeman et al., 2014b). Unsurprisingly then, the President's Council of Advisors has recommended adoption of empirically validated teaching practices to achieve the goal of a 33% increase in the number of STEM bachelor's degrees per year (Freeman et al., 2014). Studies across the STEM fields (Armbruster et al., 2009; Carlson & Winquist, 2011; Freeman et al., 2014; Kurdziel et al., 2003; Tsui & Gao, 2006; Ueckert et al., 2011; Weltman & Whiteside, 2010), including a meta-analysis by Freeman, et al. (2014) have empirically supported SCL-based pedagogies as being effective in increasing student learning in these fields.

Research on SCL in the Disciplines

There is a commonly-held belief that SCL as a teaching technique is an easier fit in the humanities and social sciences owing to the fact that many of the problems in those fields are subjective, and where a great deal of thinking about the discipline is open-ended and involves divergent opinions (Tsui & Gao, 2006). In their use of active learning, McCarthy and Anderson (2000) argue that as a type of learning centered on the interaction between the subject, the instructor, and the students, active learning is critical in the humanities and the social sciences due to the nature of human interaction that lies at the core of disciplines in these areas. This is seen by many in contrast with the STEM fields, particularly at the undergraduate level, where an objective set of skills and facts are thought to be necessary prior to the cultivation of the critical thinking skills fostered through SCL pedagogies (Tsui & Gao, 2006). Despite this, due to the emphasis on retaining students in STEM fields in the United States, there has been a significant amount of research into SCL in those disciplines, as researchers, policy makers, and academics look to ways to not only to increase retention rates but to advance critical thinking skills in their

students. Given the differences in content and traditional pedagogical approaches, the STEM fields, social sciences, and humanities have adopted differing approaches towards implementation of SCL-based teaching methods.

Culture of Education Beliefs and Adoption of SCL Methods

SCL methods are the subject of calls for reform and the stated standard across higher education in the United States. Despite this, studies show the prevalent mode of education at this level is still based on traditional, teacher-centered methods of education (Conti, 2004; Eagan et al., 2014; Hurtado et al., 2012). A substantial body of literature has focused on many of the factors impeding instructor (faculty, teaching assistant, international teaching assistant) adoption of SCL based methods, such as lack of training (DeChenne et al., 2015; Gibbs & Coffey, 2004), incentives, time, and professional identity (Brownell & Tanner, 2012; Dancy & Henderson, 2007; Fagen et al., 2002; Felder & Brent, 1996; Henderson & Dancy, 2007; Pundak et al., 2009; Silverthorn et al., 2006). The cultural and pedagogical backgrounds of many ITAs provide an additional set of challenges affecting perceptions of and adoption of SCL-based teaching methods. Beginning with a discussion of the "apprenticeship of observation," a theoretical model based in teacher education, this review will examine the means with which cultural backgrounds and personal educational experiences of ITAs specifically might influence their beliefs and appropriation of SCL introduced during ITA-specific coursework.

Apprenticeship of Observation

The "apprenticeship of observation" refers to a theory originated by Lortie in his book *Schoolteacher: A Sociological Study* (1975). Lortie used the "apprenticeship of observation" to refer to the period of time in which a student spends as an observer in school before they choose to become a teacher (if this is the path they choose). Lortie's model seeks to explain that when

students of education become teachers, they look to their own education as a model for their teaching, rather than the methods they were taught in the teacher education programs. The "apprenticeship of observation" can be extended to instructors in higher education settings who often become content experts before they begin their teaching. Most instructors who teach at the undergraduate level receive little to no formal training in education models or pedagogy before they start teaching, therefore, the "apprenticeship of observation" for an instructor in higher education may play an even more important role in their beliefs on learning and decisions on how they will teach (Austin, 2002; Ekroth, 1990). This effect then, may be magnified for instructors from other cultures and epistemological backgrounds, who look back not only on their own instruction, but on their cultural construction of knowledge and what teaching should look like (Turner, 2006).

The Relevance of ITA Cultural/Epistemological Traditions in Relation to SCL

Knowledge traditions and pedagogical values emerge from cultural and historical contexts that reflect the societies in which they are created. This, then, leads to conflicts between American beliefs about education and those in other knowledge systems that manifest in variations in beliefs and practices involving the teacher-student relationship, the nature of education, and classroom behaviors (Neves & Sanyal, 1991). These differences play out in many ways in the classroom for both instructors and students. For example, memorization and recitation of texts are a common pedagogical method in China, whereas a greater emphasis on classroom participation and a wider use of learning strategies are utilized in the SCL model (Chan, 2017; Cortazzi & Jin, 1996; Hu, 2002; Jin & Cortazzi, 2006; Kember, 2016). In Europe, teacher-centered lectures have been the norm at most colleges and universities until very recently. A 2018 report on learning and teaching in European higher education revealed that

prior to 2007 most European academics were not even aware of it as a pedagogy, and only recently has there been an emphasis on its use (Gaebel et al., 2018). However, the use of stereotypes based on culture has been criticized as reductionist and an essentialist holdover from colonial knowledge beliefs that position international faculty and students as the "Other" (Grimshaw, 2007).

Importance of Academic Culture in Relation to SCL

In addition to cultural and pedagogical influences on ITAs, the importance of the academic culture by discipline in the appropriation of teaching beliefs and methods should not be overlooked. In a study on deep learning methods, closely related to SCL in methods and goals such as an emphasis on critical thinking and problem-solving skills, as well as a focus on collaboration in the process of learning, Laird et al. (2008) examined the effect of academic discipline on deep approaches to learning at the undergraduate level. The results of the study show that faculty in the "soft" disciplines, such as those in the humanities and social sciences, were more likely to emphasize, and students use, deep learning methods more than those in the hard sciences (i.e. biology, math, chemistry, etc.). The authors point out that these results may be potentially instructive when examining patterns of disciplinary socialization for those students who choose to continue their content studies.

In a study specific to TAs and ITAs, Luo et al. (2001) used survey data of 304 teaching assistants representing 45 academic disciplines at a US university to examine how U.S. teaching assistants (USTAs) and ITAs viewed their instructional roles in the classroom, their teaching styles, potential problems, and communication strategies. Breaking down the data by nationality, gender, and academic discipline, the authors found that significantly more USTAs than ITAs adopted an informal teaching style, defined by the authors as a causal relationship between the

TA and the students in which the TA viewed their role as a facilitator. On the other end of the spectrum were the ITAs, particularly those from Asian counties, who favored a more authoritarian teaching style and a formal relationship between teacher and student. The authors noted that in terms of actual instructional methods, there was no statistical difference between the USTAs and the ITAs, with the authors positing that this might have been the result of the university requirement of the ITAs to attend a three-week training to prepare them to work in the American classroom. The study also found a significant difference in USTA and ITA teaching style according to academic discipline. Separated into the soft and hard sciences, the authors found that in instructional roles, teaching style, and communication strategy, those TAs in the soft sciences were significantly more likely to have their beliefs and practices fall in line with SCL practices, as opposed to those TAs in the hard sciences. The authors conclude that both ITAs and TAs in hard sciences are more likely to adopt a formal, teacher-centered teaching style.

In another study, Tang and Sandell (2000) found the importance of discipline-specific training to be crucial to the overall preparation of ITAs when two Ohio universities implemented ITA professional development programs after it was found that many ITAs were experiencing teaching challenges despite attaining university-required language proficiency. In addition to working with the ITAs on their linguistic abilities, the ITA programs included emphasis on intercultural communication skills and teaching pedagogy and skills. The department concluded that the integration of appropriate pedagogical training, particularly in a discipline-focused manner, was crucial to effectively preparing the ITAs to successfully teach in the university system.

The importance of the discipline and departmental beliefs about not only pedagogy, but the abilities of ITAs to teach American undergraduates, also presents a challenge for ITAs in

adopting SCL based teaching practices. In a dissertation study, Christian (2014), found that even upon successfully completing a department required course for ITAs that emphasized SCL theory and practice, Chinese ITAs in a statistics department were not only *not* encouraged to use these teaching techniques, but they were given premade PowerPoint (PPT) slides to lecture from. The study surmises that the faculty, aware of the "supposed deficiencies of Chinese TAs" (p. 101), felt they were helping the ITAs by having them flip through PPT slides created by others. Unfortunately for both the author of the study and the students interviewed, student evaluations reported that the class was a non-engaging statistics class for many students, which was reflected in a negative sense in the ITA's student evaluations.

Theoretical and Analytical Framework

Cultural-Historical Activity Theory

Cultural-Historical Activity Theory (CHAT) is a perspective that is based on the psychological principle that higher cognitive development is an interactive process between society and the individual, mediated by culture, context, language, and social interaction (Lantolf & Thorne, 2006). As such, CHAT is effective in examining the professional development of teachers and seems particularly applicable to those teaching across cultures, such as international faculty and teaching assistants and teachers of second languages (Dupuy & Allen, 2012; Johnson & Golombek, 2011).

In their discussion of the use of CHAT as a model for understanding the various factors present in the process of learning to teach, Grossman et al. (1999) note that its use allows researchers to view the sometimes-contradictory findings in the field as "pieces to a larger puzzle" (p. 4). Because CHAT emphasizes the social settings in which teachers learn how to teach, both formally and informally, it can be used to examine how teachers mediate their

existing beliefs about education with the cultural, institutional, and historical factors and settings in which they learn to teach. This is especially useful in exploring why, given the same formal education (such as through the TFITA class) in pedagogical theory and methods, and even given the same cultural background, changes in thinking about education and implemented practices in the classroom can vary from one individual ITA to another. CHAT can help to explain how the mental functioning of an individual is related to and influenced by the cultural, institutional, and historic context the individual exists in as well as their pre-existing schema. This, then, highlights the roles of social interaction and culturally organized action in influencing the development of the individual as teacher. As a framework, CHAT is particularly useful in examining the consequences of professional development and teacher education (Dupuy & Allen, 2012; Grossman et al., 1999; Johnson & Golombek, 2011).

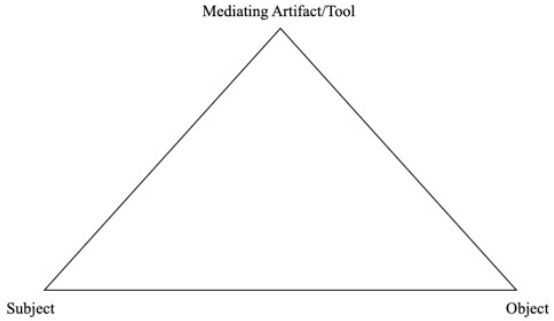
To begin to discuss the applicability and appropriateness of utilizing CHAT as a theoretical perspective for exploring ITAs as adult learners, its foundations need to be explored further. Starting with Vygotsky's sociocultural theory, CHAT has evolved through three generations, each building on the previous iteration. The evolution from Vygotsky's initial sociocultural theory through third generation CHAT is discussed below.

First- and Second-Generation CHAT. CHAT, now considered in its third iteration, began with Vygotsky's work on human learning and activity mediation. Vygotsky theorized an essential transactive relationship between an individual's development and learning and the cultural, historical, and institutional contexts the individual is a part of (Rogoff, 1990; Wertsch & Sohmer, 1995; Yamagata-Lynch, 2010). Vygotsky introduced the concept of mediated action to describe the process in which elements of the context influence, and are influenced by, the individual (the *subject*) in a goal-oriented activity. In Vygotsky's basic mediated action triangle

(Figure 2), now considered the first iteration of CHAT, the *mediating artifact/tool* can describe artifacts, social others, and prior knowledge with which the *subject* interacts within the setting, and the *object* is the goal (Cole & Engeström, 1993; Yamagata-Lynch, 2010).

Figure 2

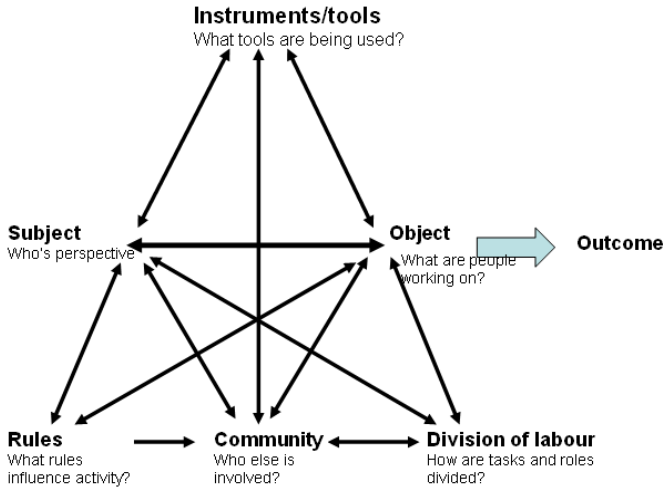
Vygotsky's basic mediated action triangle (adapted from Cole & Engström, 1993)



Following Vygotsky's death, Leont'ev, a student of Vygotsky's, contributed to the mediated action triangle model by emphasizing the collective nature of human activity, as opposed to Vygotsky's *subject*-oriented model (Yamagata-Lynch, 2010). In Leont'ev's activity system model, now considered the second iteration of CHAT, the roles of the *subject*'s community, divisions of labor within the community, and the rules of interaction between roles all became elements that influenced, and were influenced by, the *subject* (Comperatore, 2017; Engeström, 2000). The components of second-generation CHAT can be seen in Figure 3, and are defined in Table 3.

Figure 3

Second Generation CHAT



Source: Adapted from Engeström (1987). *Learning by expanding: An activity-theoretical approach to developmental research.*

Table 3

Components of First- and Second-Generation Activity Theory

Components of First- and Second-Generation Activity Theory	
Component	Definition
Subject	Individual or groups of individuals engaging in the activity
Object	The objective motivating the subjects' participation in the activity
Artifacts/Tools	Signs, symbols, language, and conceptual understandings used to mediate the activity and obtain the object
Community	Social and cultural group/s in which subject/s are participating in the activity
Division of Labor	Defines how tasks and roles are shared between system participants
Rules	The rules, norms, and roles guiding participants within the community

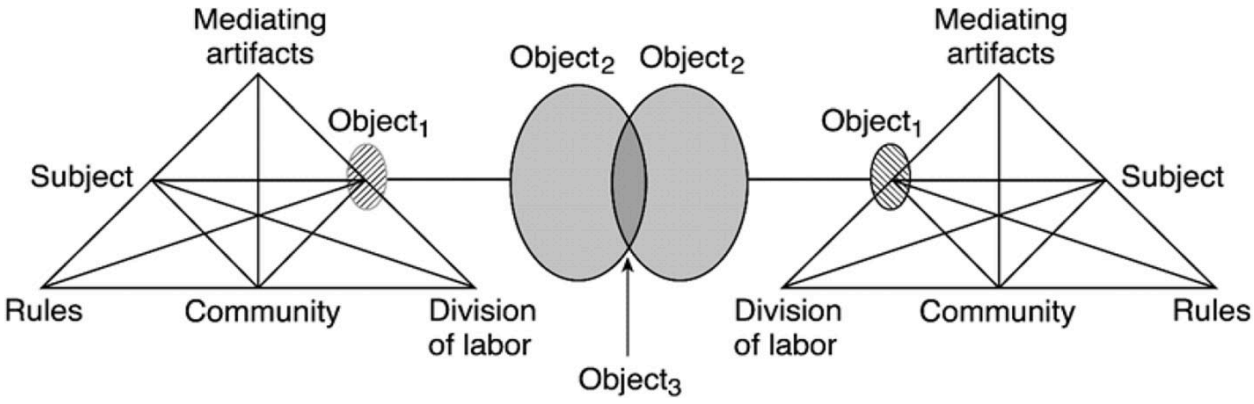
Source: Taken from Cole & Engeström (1993)

Third generation CHAT. Taking Leont'ev's work one step further, Engeström developed a method to analyze the mediated interactions within the activity theory model

(Yamagata-Lynch, 2010). In developing this method, now recognized as the third generation of activity theory, Engeström introduced the cultural-historical perspective to the previous models, creating cultural historical activity theory, or CHAT (Comperatore, 2017; Engeström, 2000). Within Engeström's CHAT model the basic unit of analysis is the *object*-oriented activity itself, as opposed to the previous two models in which the *subject* was the basic unit of analysis. Additionally, Engeström included networks of interacting activity systems to deal with the intersections of tensions and contradictions that occur between a *subject*'s activity settings. Interacting activity systems for the *subject* can include both concurrent and previous activity systems, accounting for current and past sociocultural influences. Figure 4 represents Engeström's theoretical model for third generation CHAT reflecting the interactions among activity settings.

Figure 4

Third generation Activity Theory (Cultural-Historical Activity Theory)



Source: Batiibwe (2019)

Tensions and Congruences in CHAT. Tensions occur when there are systemic contradictions between and among the six components of the activity system. In her discussion of tensions within activity systems, Yamagata-Lynch (2010) defines how they occur and how

they can influence the *subject*'s object-oriented activity:

> These tensions arise when the conditions of an activity put the *subject* in contradictory situations that can preclude achieving the object or the nature of the *subject*'s participation in the activity while trying to achieve the object. In some cases, the activity may collapse altogether and the *subject* may not be able to attain the object. In other cases, *subjects* may attain the object but be dissatisfied about how they attained the object. (p. 23)

In discussing the role of tensions in analyzing activity systems, Barab et al. (2002) note, "It is essentially the tensions within and among activity systems that create the force for change." (p. 52). It is precisely at points of tension where change, or growth, can occur (Roth & Tobin, 2002). Tensions, therefore, play a paramount role in the analysis of activity systems. Some researchers, however, find that CHAT's emphasis on tensions and contradictions within systems might be a limitation (Frambach et al., 2014; Toth-Cohen, 2008). While using activity theory to study medical education, Frambach et al. (2014) posit that congruences, or areas of harmony or coordination within and between the components of activity systems, should also be analyzed:

> As well as a possible strength, however, the focus on contradictions might be a possible limitation of CHAT, as there is a danger that it overshadows processes that result from congruence, while these are equally important for understanding cultural dynamics. Even though we paid attention to congruent elements during our data collection and analysis, our focus on contradictions was probably stronger as a result of our CHAT perspective. (p. 199–200).

Appropriation

> Appropriation, a central concept of activity theory, refers to how an individual modifies

their skills and understanding through their involvement in an activity setting that prepares them for involvement in another, related activity setting (Rogoff, 1993). In the parlance of CHAT, appropriation refers to the process of a *subject* adopting a *tool*, either *conceptual*, *practical*, or both, available for use in a particular social environment towards an *object* (Grossman et al., 1999; Leont′ev, 1978). In the context of this study, *conceptual tools* refer to principles, frameworks, and ideas about teaching and learning that the ITAs use as heuristics to guide their teaching decisions. The term *practical tools* then refers to classroom practices, strategies and resources with local and immediate utility (Grossman et al., 1999). In relation to this study, these terms could refer to an ITA appropriating the *conceptual tool* of SCL through the use of one of its associated *practical tools* such as active learning.

Influences affecting appropriation. In any activity setting there are a multitude of influences on the *subject* that influence whether they appropriate *conceptual* or *practical tools* in their interaction with the *object*, and to what extent. These influences can be either social or individual in nature. The *social context of learning* represents the sociocultural environment in which learning occurs, in the case of a learning environment to include the instructor and other students as well as the physical environment. The individual characteristics of the learner, in conjunction with other mediators in the activity setting, can affect their appropriation of tools. These experiences can either inhibit or encourage appropriation of a *tool*, and the extent to which it is exhibited. Indicative of the interactive nature inherent in CHAT, the *subject's* individual characteristics, then, can act to mediate their knowledge and beliefs about the *tools* in the activity setting. These characteristics include factors such as their past history as a learner, discussed previously as their "apprenticeship of observation" (Lortie, 1975), which can be closely related to their knowledge and beliefs about the content. In the case of adult learners such as graduate

students the “13,000 hours” (p. 61) that Lortie estimated that a student spends as an “apprentice” to teaching theories and methods by the time they graduate from secondary school is dwarfed in comparison to the additional “apprenticeship” years spent as an undergraduate and graduate student. Another influence on the *subject* is the culture of learning that they bring with them to the activity setting representing taken for granted frameworks and expectations of learning and behavior about how to teach and learn successfully (Cortazzi & Jin, 1996; Eagan et al., 2014; Hurtado et al., 2012).

A relevant example of the influence of a *subject*’s sociocultural history are the influences of Confucian Heritage Culture (CHC) (Jin & Cortazzi, 2006). Although some scholars argue that in response to economic pressures CHC is starting to reflect a more individualistic model (Penfold & van der Veen, 2014), traditionally CHC reflects a hierarchical, collectivist system, which values harmony in the classroom and a focus on passing examinations (Chan, 2017, 2019). These beliefs are often at odds with the Socratic education systems found in Europe, North America, and Australasia, which value experiential learner-centered pedagogy that includes creativity, critical thinking, intellectual independence, and an open questioning of beliefs (Gorry, 2011). The distance between the two cultures of learning might be too large for the *subject* to mediate, thus prohibiting either fully or partially the *subject’*s appropriation of conceptual and *practical tools* that will enable them to work on the *object* of learning how to effectively teach in the US higher education setting.

The personal goals and expectations of the *subject* present another factor affecting appropriation of *tools* toward an *object*. If using the same example of an ITA training program, the presumed *object* of teaching effectively is mediated by the personal goals of the ITAs, who might be teaching only to fulfill institutional expectations. In her study on ITAs in mathematics,

Kim (2014) found that the influences of the ITAs' personal goals as researchers, not as teachers of mathematics, acted as a major prohibitor in their teaching, "the majority of M[athematics] TAs have taught classes based on their personal knowledge derived from the mathematics learning experiences as student because of their first priority goal, studying their fields, and their resistance to new methods of teaching" (p. 75).

Appropriation, however, does not necessarily imply a complete appropriation of a tool. According to Grossman et al. (1999), "The extent of appropriation depends on the congruence of a learner's values, prior experiences, and goals with those of more experienced or powerful members of a culture, such as school based-teachers or university faculty" (p. 15). Accordingly, then, in the ITA example, an ITA could decide to appropriate a *practical tool*, such as the aforementioned group work, without appropriating the theoretical concept of SCL behind it, which could be due factors such as an incongruence with the ITA's own cultures of belief. In another possibility, the ITA could fully or partially appropriate SCL theory in their own mental schema of beliefs about education, but not appropriate the practical tools of the theory due to the *community* influence present in the department they will be teaching in. The varying degrees of appropriation can be used to explore how ITAs negotiate their teaching practices through appropriation of tools in the activity setting of a US university.

Five degrees of appropriation.

Grossman et al.'s (1999) classification of the appropriation, or lack thereof, of *tools* by a *subject* in a CHAT model is a useful framework with which to not only look at the perceptions and practices of ITAs after an ITA training program, but also at the cultural, educational, and contextual influences interacting within the activity setting.

Lack of appropriation. When a *subject* completely rejects the use of either conceptual

or practical tools it is referred to as a *lack of appropriation*. There can be many reasons for this, such as a difficulty in subject matter, or a cultural mismatch between the *subject* and the *tools*. For example, an ITA from a culture with beliefs about education that emphasize an approach to learning that is incongruous with the one they are learning about might resist and reject SCL theory and methods as too divergent from the ones that inform their own beliefs about effective teaching. Again going back to the example of an ITA from a CHC background in an ITA training program, the incompatibility between the ITA's beliefs that there should be a strict hierarchy between teacher and students, and the training program's SCL pedagogy which asserts that the teacher act more as a "guide on the side," might be too much for the ITA to overcome, therefore prompting the ITA to reject the SCL pedagogy entirely.

Appropriating a label. When a *subject* learns the name of a tool but does not learn any of its features, either conceptual or pedagogical, it is termed *appropriating a label*. For an ITA, this can mean learning about SCL theories and the names of practical tools, such as group learning or active learning, but have no real knowledge of what those terms mean, much less how to implement them in their teaching.

Appropriating surface features. The phrase *appropriating surface features* refers to the *subject* knowing some features of the *tools*, but is not able to use them holistically in a conceptual sense. This can occur when the *subject* has an incomplete understanding of the conceptual purpose behind a *practical tool*. For example, this can be reflected in an ITA utilizing a SCL-based pedagogical tool, such as questioning to stimulate critical thinking skills, but not asking their students the types of questions that could elicit these types of responses in the students.

Appropriating conceptual underpinnings. When a *subject* understands the conceptual

basis of a *tool* and can occasionally use it in their implementation of *practical tools* toward an *object*, or goal, it is referred to as *appropriating conceptual underpinnings*. This level of appropriation would be exemplified in an ITA grasping the conceptual elements of SCL theory, and intending to use it in their teaching, but not be able to make the jump from concept to practice in a pedagogically consistent manner in their own teaching.

Achieving mastery. As the term implies, *achieving mastery* signifies when the *subject* is able to use both the c*onceptual* and *practical tools* available to them to act upon the *object*. In the example of the ITA's activity setting, this could mean that the ITA conceptually understood what the ITA training program was teaching as far as SCL theory, and was able to implement it fully and effectively in their own teaching.

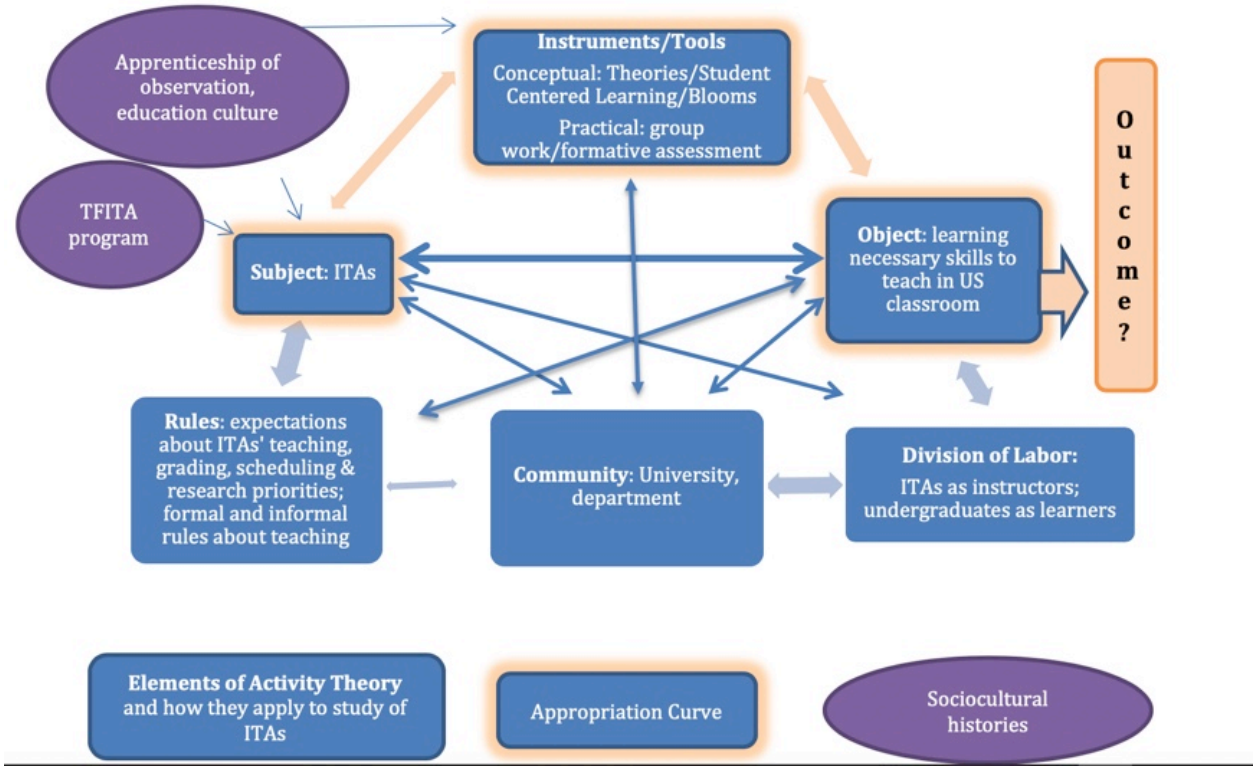
Benefits and applicability of using CHAT to study ITA development.

Evolving from Vygotsky's work on the sociocultural theories of learning that highlight the importance of context, CHAT presents a useful framework with which to analyze the process of an ITA in learning to teach in a US higher education setting. Considering the multitude of cultures, languages, and beliefs present in an ITA training program, not to mention the varying cultures of belief about education being brought to bear in the ITAs' academic disciplinary communities, the use of CHAT enables a holistic view of the many factors affecting the ITAs in this study. Through the exploration and analysis of the experiences of the ITAs in the context of teaching at a U.S. university after participating in an ITA training program, factors critical to the successful appropriation of known best didactic practices by ITAs may be identified and further refined to optimize the effectiveness of ITA training programs in the future. In discussing the importance of analyzing settings for professional development, Grossman et al. (1999) suggest that "Changing settings is much more possible than changing hosts of individuals." (p. 24).

Figure 5 represents how CHAT can be used in this study of ITAs regarding the decisions and perceptions of ITAs and their teaching practice.

Figure 5

Representation of this study mapped on to the CHAT framework



Additionally, looking to the writings of critical educational scholar Lisa Delpit (1986, 1988) who questioned the appropriateness of constructivist-based pedagogy, such as SCL, for culturally diverse learners, qualitative examination of ITA perspectives of SCL pedagogy in the US higher education setting has the potential to expose a "silenced dialogue" of the culturally diverse ITA, allowing examination of assumed benefits of SCL methods for all students.

Significance of this Study

As discussed earlier, ITAs play an increasingly important role in the education of

undergraduates in U.S. universities (Williams, 2011). As research attests, this comes with cultural issues between the ITAs and the undergraduates (Zhou, 2009). At the same time many universities and researchers of pedagogy in specific fields are calling for a move toward student-centered learning that is often at odds with not only the education culture of many ITAs, but also with current pedagogical practice in their field of study (Eddy & Hogan, 2014; Haak et al., 2011; Lea et al., 2003). Additionally, the pressure that many graduate students, not just international graduate students, feel to prioritize research over the honing of teaching skills, may limit their appropriation of student-centered learning as pedagogy (Brownell & Tanner, 2012). Taken together, these factors often serve to create a perceived incompatibility between ITA and American undergraduates.

While there is a plethora of research about ITAs, most of these are focused on specific aspects of the phenomenon, such as linguistic and cultural issues, or on the outcomes of ITA training programs. There is a gap in the literature focused on the viewpoints of ITAs in relation to their roles as international graduate students as well as novice members of academia and how these factors affect their teaching decisions.

This study seeks to add to the body of research by using CHAT as a lens to analyze ITAs perceptions about the academic and social forces that influence their appropriation of student-centered pedagogical tools.

CHAPTER 3: METHODS

Design and Overview of the Study

This is a qualitative descriptive multiple case study examining the decision-making process of individual ITAs in regards to their teaching practice, as well as their perceptions of the tensions that influenced those decisions. Due to the unique professional and personal experiences and histories that each ITA brings to the TFITA program, and subsequently into their own teaching, it is important that the methods utilized in this study are able to, as best as possible, capture the perceptions that the ITAs have of their own experiences.

The use of qualitative sociocultural methodology to explore the full range of views of the participants, without needing to confine their experiences into narrow categories (Creswell, 2009), allowed me to rely on the participants' subjective views and perceptions of the situation being studied. According to Merriam (1998) "Qualitative researchers are interested in understanding the meanings that people have constructed, that is, how they make sense of their world and the experiences they have in the world" (p. 6). By utilizing qualitative methods, I was able to gain a greater awareness of the elements that the ITAs conceive of as tensions in their appropriation of SCL methods in their teaching.

As I discussed in the Literature Review, I will be using Cultural-Historical Activity Theory (CHAT) as a theoretical and analytical framework to explore my research questions. Because CHAT emphasizes the social settings in which concept development occurs, it is particularly useful in examining the lived experiences of the participants in this study. In their

research on the pedagogical appropriation processes of novice teachers, Grossman et al. (1999) pointed out the applicability of CHAT to examine cases in a variety of settings:

> Activity theory can, therefore, help account for changes in teachers' thinking and practice, even when those changes differ from case to case. Rather than seeking a uniform explanation for the reasons behind teachers' gravitation to institutional values, an approach grounded in activity theory is more concerned with issues of enculturation and their myriad causes and effects. From this theoretical perspective, then, the question is not to discover a single cause that accounts for all change, but rather to ask, under what circumstances do particular kinds of changes take place? (p. 5)

The following section will detail the methods and processes that I utilized to collect and analyze the data for this study. I will begin with a discussion of the research methodology, participants and recruitment, data sources, data collection and analysis, the potential limitations of the study, and will conclude with my positionality as the researcher.

Research methodology – Case Study

I conducted this qualitative, descriptive collective case study in an attempt to uncover the phenomenon of sociocultural-based conceptual and practical tool appropriation by ITAs in an American higher education setting. A case study method was employed to highlight the context in which the ITAs are teaching and learning, a focal interest in this study. Yin (2003) provides a two-part definition of a case study, beginning with its scope and the importance of contextual conditions:

> *1) A case study is an empirical inquiry that*
>
> - investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. (p. 13).

Once Yin defines the scope of a case study, he moves on to the important technical characteristics of a case study that reinforce its reliability as empirical inquiry:

> *2) The case study inquiry*
>
> - copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
> - relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
> - benefits from the prior development of theoretical propositions to guide data collection and analysis. (p. 13 – 14)

This case study is bounded by several contexts; the ITAs themselves and their experiences both as graduate students and as novice instructors, the TFITA class they participated in, their teaching assignments and the departments they are taught in, and the university campus itself. This study is situated in the intersection of these contexts. The main focus and purpose of this study is to examine the factors that affect the decision-making process of these ITAs in their appropriation and use of SCL based pedagogical concepts and tools in their teaching. Specifically, this dissertation was conducted as a collective case study (Merriam, 1998) due to the participation of seven ITAs and one former ITA in the study, allowing the researcher to explore differences within and between cases (Yin, 2003). The questions investigated were as follows:

- How do ITAs and former ITAs decide what conceptual and practical tools to appropriate in their teaching practice?

- How do the ITAs and former ITAs perceive and understand the factors (both positive and negative) involved in their appropriation of tools (both conceptual and practical) to use as instructors in U.S. classrooms?

These questions were best answered using qualitative methodology due to the complex nature of the process involved as well as the multiple settings in which the participants were working in at the time of the study (Marshall & Rossman, 1999).

Site Selection

Regional University was selected as the primary site for this research due to my previous work as a TA/co-teacher in the TFITA program. The importance of my experience with the TFITA program and the use of CHAT as a theoretical and analytical frame in this study is highlighted by Yamagata-Lynch (2010), "The investigators' strong theoretical background and practical knowledge about the setting play a critical role when identifying the selection criteria for setting, participant, and activity" (p. 68). The exception to this is the current location of Maria, who had been an ITA at Regional University, but was a post-doctoral fellow at Ocean University, an R1 institution of similar size also in the Southeastern United States, at the time of data collection.

Participants and Recruitment

The participants in this study included seven current ITAs and one former ITA, all of whom had participated in the TFITA program between the years of 2013 and 2019. I used purposeful sampling (Merriam, 1998) to identify ITAs to be part of the study. After receiving IRB approval, I asked the director of the TFITA program for the names and email contact information of ITAs that might still be teaching at Regional University.

Selection criteria for participants included:

- current or former status as an international teaching assistant at Regional University, and
- completion of a TFITA course at Regional University between the years of 2013 and 2019
- participants can come from any department or school at Regional University

Upon receipt of this list, I sent individual emails to each on the list with an IRB approved first contact letter explaining the study. Initially, 11 ITAs responded to my email, but scheduling issues precluded one from participation, and two former ITAs ceased responding to emails after two exchanges. The remaining participants included seven ITAs that were currently at Regional University, and one former ITA who had recently graduated and was at the time of the study a post-doctoral fellow at Ocean University. Table 3 provides a list of the participants' pseudonyms, their country of origin, gender, major, and current status. Of the eight participants, four were female and four were male. Four participants were from STEM departments, and four were from non-STEM departments.

Initial interviews with the six of the current ITAs were conducted on campus during the fall 2019 semester. Arrangements were made to interview the other two participants, Maria and Lia, via Skype as Maria was at Ocean University, and Lia was conducting research internationally. During the first round of interviews, I made a request to all the participants to observe them teaching and conduct a follow-up interview. Of the eight, one participant declined due to discomfort in being observed teaching, one participant was conducting field research out of the country, and three were not teaching classes during the time of data collection. The remaining three participants, Maria, Neel, and Sara, all agreed to be observed teaching and to participate in an additional, post-observation interview. Because she was at another university at

the time of data collection, I made arrangements to observe Maria teaching and conduct a post-observation, second interview at Ocean University where she was a post-doctoral fellow.

Table 4

Participants and demographics

Name	Country of Origin	Gender	Major	Current or former ITA	In depth case study
Maria	Italy	F	Math	Former ITA	Y
Sara	Japan	F	Social Sciences	ITA	Y
Neel	India	M	Statistics	ITA	Y
Arun	India	M	Statistics	ITA	N
Robin	Taiwan	F	Social Sciences	ITA	N
Lia	Belgium	F	Humanities	ITA	N
Sam	S. Korea	M	Statistics	ITA	N
Daniel	Chile	M	Humanities	ITA	N

Data Collection

Data was collected during the fall of 2019. All data was collected with the full, written permission of the participants and in strict accordance to Institutional Review Board (IRB) guidelines. See Appendix C for IRB Consent.

In order to follow the precepts of qualitative research tradition (Denzin & Lincoln, 2005; Merriam, 1998; Yin, 2003), multiple data sources were collected for this case study. The data collected consists of semi-structured interviews, observations of selected participants, previously videotaped microteaching sessions, peer and instructor evaluations of each microteaching, and

class related materials such as the syllabus, readings, and class marketing. A portion of the data, such as the videotaped microteaching sessions, are collected as a regular part of the TFITA course to be used by the ITAs to review and analyze their own teaching. Additional data, including the semi-structured interviews, observations, and the content analysis specific to this dissertation case were collected during the Fall of 2019. All data gathered was in compliance with IRB guidelines and with the full knowledge and participation of the participants.

Semi-Structured Interviews

Due to the importance of interviews as data sources for case studies (Yin, 2003), semi-structured interviews with the participants were the primary data source for this case study. The semi-structured interviews consisted of at least 60 to 90-minute interviews with each study participant. Maria, Sara, and Neel, the participants who also agreed to be observed, each participated in a second, post-observation, semi-structured interview of at least 60 minutes. A semi-structured interview protocol (Appendix A) was used with all participants, and each interview was audio-recorded with permission of the participant.

Elements identified in CHAT (Engeström, 2014) were utilized as a guideline in creating interview questions for the participants. The interview questions were broken down in to two parts. During the interview I first asked the participants to tell me about their past educational experiences, both in their native country and in the United States, to get an idea of what they perceive themselves to bring to their current teaching experience. I then asked the participants questions about their understanding of and beliefs about SCL and how they perceived it to be used in their disciplines. Additionally, I asked questions about any potential issues or tensions they had experienced in enacting these pedagogical concepts and tools in the classes they had taught or were teaching at the time of the study. In the second part of the interview I asked

questions about the participants' perceptions of their use and appropriation of SCL tools and practices in their teaching, along with any perceived barriers or tensions they feel hindered their usage, or conversely, supported their implementation and appropriation of these concepts and tools.

Observations

I observed Sara and Neel each teaching two of the same undergraduate classes they were teaching at the time of the study. I observed Maria teaching two lower level undergraduate classes, and one upper-level undergraduate class. The participants were then interviewed a second time after the observations were completed. Based on the precepts of grounded theory (Charmaz, 2001), there are fewer predetermined interview questions for the second interview (Appendix B) which allowed me to use the data collected during both the initial interview and the observation to guide and influence further data gathering. Using questions based on CHAT as "points of departure to look at data, to listen to interviewees and to think analytically about the data" (p. 337), I then used observation notes to guide the interview.

Document analysis of class materials

Additionally, I analyzed all class materials, such as the syllabus, class readings, and advertisements for the class as additional data points in the examination of participant use of SCL methods. While not the primary source of data, documents can provide additional context to this case study. In his discussion about the use of document analysis, (Prior, 2003) states that "Determining how documents are consumed and used in organized settings, that is, how they function, should form an important part of any social scientific research project" (p. 3). As such, document analysis can be particularly useful in qualitative case studies when combined with other data collection methodologies in an effort to triangulate data (Bowen, 2009).

Content analysis of microteaching

As an additional point of data for triangulation purposes, I analyzed each participants' three videotaped microteaching sessions looking for instances of SCL by the ITA compared to instances of teacher-centered learning as outlined by Huba and Freed (2000) in their comparison of teacher-centered and student-centered learning paradigms. Additionally, I also looked at student response and participation to the utilized pedagogy, not to gauge the effectiveness of the pedagogy, but instead to examine the students as participants in the ITAs activity setting.

Data recording and management.

All observation notes, documents, and interview transcripts were kept on a password protected computer drive. Interviews were audio taped and transcribed by a professional transcription service. Some quotes have been edited for clarity and grammar in Chapters Four through Seven. Original verbatim transcriptions are available upon request. Observation of selected participants' teaching provided me the opportunity to triangulate information gathered during interviews and provide context to the data. Conducting observations with a focus on reporting with thick, rich detail also allowed me to the view aspects of the phenomenon that can be obscured during interviews by etiquette, language, or culture (Charmaz, 2001). Additionally, according to Merriam (1998), observation often allows the researcher to notice things that "become routine to the participants themselves" (p. 95).

Again, looking to grounded theory as the basis of this study, I did not use a detailed observation guide as a checklist of observed behavior. Instead, I used Merriam's (1998) checklist of elements likely to be present in any setting as a reference point as to what to observe:

- Physical setting
- Participants

- Activities and interactions
- Conversations
- Subtle factors
- Researchers behavior

Data Analysis

Data for this study was initially analyzed with inductive analysis as the primary analysis technique using MaxQDA as a data management tool. According to Patton (1980), "Inductive analysis means that the patterns, themes, and categories of analysis come from the data; they emerge out of the data rather than being imposed on them prior to data collection and analysis" (p. 308). Taking Merriam's (1998) advice that "the right way to analyze data in a qualitative study is to do it *simultaneously* with the data collection" (p. 162), preliminary analysis occurred in the field as I interviewed the participants, analyzed data, and mad field notes and memos. The ongoing and iterative nature of this type of data analysis does not lend itself to a detailed and specific set of procedures for the researcher to follow.

Because the goal of this study was to examine the participants' perceptions of their teaching influences and experiences, the data was first manually coded in an inductive fashion. By eschewing a priori codes during the open coding stage and focusing on the experiences of the participants and identifying social processes, the use of inductive coding allowed for the maintenance of the emic perspective (Corbin & Strauss, 1990). Beginning with open coding, I noted patterns and themes to arrive at comparisons and contrasts between cases (Miles & Huberman, 1994). I then moved on to axial coding, utilizing the themes and concepts that were identified during open coding by re-reading and analyzing the data to confirm the concepts and to look for examples in the data (Corbin & Strauss, 1990). Following axial coding, I began the

process of re-reading and selectively coding the data around the core family of codes I deemed most purposeful to the study (Strauss, 1987). At this point, I was ready to utilize a modified constant comparative method of analysis (Chenoweth, 2009; Fram, 2013), to use the themes and concepts derived from the inductive data analysis to compare with the elements of CHAT to identify the factors involved in the participants' use of teaching tools (Yamagata-Lynch, 2010).

CHAT in Data Analysis

As discussed in the previous chapter, the use of CHAT as an analysis tool is particularly effective in the investigation of complex, real-life learning environments (Yamagata-Lynch, 2010). Once I had completed the selective coding of the data, I followed Mwanza's (2002) Eight-Step-Model (Table 5) for translating activity systems. In doing so, I identified themes that arose from the data in an attempt to answer my research questions:

1) How do ITAs and former ITAs decide what conceptual and practical tools to appropriate in their teaching practice?

2)What do the ITAs and former ITAs perceive as the factors involved in their appropriation of SCL tools (both conceptual and practical) to use as instructors in U.S. classrooms?

Table 5

Mwanza's (2002) Eight-Step-Model for translating activity systems

	Identify the…	Question to ask…
Step 1	Activity	What sort of activity am I interested in?
Step 2	Objective	Why is this activity taking place?
Step 3	Subjects	Who is involved in carrying out this activity?
Step 4	Tools	By what means are the subjects carrying out this activity?
Step 5	Rules and regulations	Are there any cultural norms, rules, and regulations governing the performance of the activity?
Step 6	Division of labor	Who is responsible for what when carrying out this activity and how are the roles organized?
Step 7	Community	What is the environment in which the activity is carried out?
Step 8	Outcome	What is the desired outcome from this activity?

Note: Mwanza uses the word "objective" in place of "object".

During the activity system analysis process I began to draft CHAT system models "by identifying themes that fit into the *subject*, *tool*, *object*, *rule*, *community*, and *division of labor* elements" (Yamagata-Lynch, 2010, p. 75) related to the study. I often created, threw away, and re-created CHAT system models during this phase and I continually re-read the data and codes while simultaneously gathering data related themes that emerged from the participants' data. When I finally felt satisfied in my data analysis, I began to write a narrative using thick description. This was generally not the final step, however, as the analysis process continued into the narrative writing, something Yamagata-Lynch also comments on when discussing her data analysis process, "invariably the narrative writing process involves a new stage of analysis and I make additional changes to the models." (p. 75)

Addressing potential limitations

Case study research has been criticized for its lack of rigor in the collection, construction, and analysis of data, thereby bringing into question its reliability, validity, and generalizability

(Hamel et al., 1993). In regards to reliability and validity, Guba and Lincoln, (1981) point out the particular problem of ethics in qualitative case study when the researcher, as the primary instrument of data collection and analysis, “could so select from among available data that virtually anything he wished could be illustrated” (p. 378). Merriam (2009), counters arguments against the validity of case study and the presentation of randomized controlled trials as the “gold standard” in qualitative research with a quote from Shields (2007): "The strength of qualitative approaches is that they account for and include difference--ideologically, epistemologically, methodologically--and most importantly, humanly. They do not attempt to eliminate what cannot be discounted. They do not attempt to simplify what cannot be simplified. Thus, it is precisely because case study includes paradoxes and acknowledges that there are no simple answers, that it can and should qualify as the gold standard" (p. 53). Additionally, while qualitative case study, particularly of such a small number of participants as this study is proposing, cannot be generalized in the formal sense to a larger population, Flyvbjerg (2006) argues that universals cannot be found when studying human affairs.

As an alternative to the more traditional, quantitatively oriented research goals of validity, reliability, and objectivity, Guba and Lincoln (1989) argue for alternative standards for judging the quality of qualitative research: credibility, transferability, dependability, and confirmability. This study will attempt to achieve those goals in its use of triangulation of the data, and peer debriefing (credibility), providing a thick, rich description (transferability), and access to data by external reviewers and reflexivity (dependability and confirmability).

Yamagata-Lynch (2010) notes that Activity Theory (and, in extension, CHAT), is a “relatively novel analytical method, and there are no agreed-upon strategies for maintaining

trustworthiness." (p. 78). As such, she suggests following Schoenfeld's (1992) five standards for maintaining trustworthiness when using novel methodologies such as CHAT:

1. Establish the context: describe the issues to be addressed.
2. Describe the rationale for the method.
3. Describe the method in sufficient detail that readers who wish to can apply the method.
4. Provide a body of data that is large enough to allow readers to (a) analyze it on their own terms to see if their sense of what happened in it agrees with the author's, and (b) employ the author's method and see if it produces the author's analysis.
5. Offer a methodological discussion that specifies the scope and limitations of the method, as well as the circumstances in which it can profitably be used, and that treats issues of reliability and validity (p. 181).

I offer that I have met Schoenfeld's five standards in this study. I addressed Standard 1 in the Introduction and Literature Review when I discussed the context and issues to be addressed in this study. Standard 2, provide a rationale for the method to be used, was taken up in the Literature Review with a discussion of the applicability of CHAT as a theoretical and analytical framework. Standard 3 has been addressed in this chapter in my discussion of the methodologies I used to identify the study participants, and then to collect, and analyze the data. Standard 4 will be addressed in Chapters 4-5 through my use of narrative and thick description (Stake, 1995). Finally, I will discuss the scope and limitations of the study, the focus of Standard 5, in the conclusion of the study.

Positionality

As the primary tool for data collection and analysis, the researcher owes a particular duty to the reader to expose their own positionality. Stake (1995) reflects on this when he posits, "All

researchers have great privilege and obligation: the privilege to pay attention and the obligation to make conclusions drawn from these choices meaningful to colleagues and clients" (p. 94). My positionality is doubly important, as I was a teaching assistant/co-teacher in the TFITA program from 2008 – 2010, then again from 2014 – 2015, and some of the participants were my students. I am therefore part of the research as well as an element in the participants' activity settings. Again, going back to Stake (1995), qualitative case study researchers,

> …will, like others, pass to readers some of their personal relationships – and fail to pass along others. They know that the reader, too, will add and subtract, invent and shape – reconstructing the knowledge in ways that leave it…more likely to be personally useful. (p. 455)

I come to this study with previous experience as an English as a Second Language teacher for seven years, the coordinator of a dual language elementary school program for 2 years, and co-taught TFITA courses for three years as a graduate student. I have a strong personal and professional interest in intercultural competence and linguistic diversity, two elements that drew me to working with international graduate students.

My interest in conducting this particular study came from working with TFITA students in general, and particularly from lively TFITA class discussions during the fall 2014 semester about the similarities and differences in education culture between the participants home countries and the US and the use of SCL pedagogy in higher education settings in the US. While these topics are covered each semester, it is often received by the students and discussed for a session or two, only to be brought up occasionally throughout the semester. However, unlike many other semesters, the cohort participating in the fall 2014 class was comprised of a group of ITAs that varied widely in background,

home country, and discipline. Instead of quickly moving beyond the topic of education and teaching norms, this cohort persisted in discussing it and utilizing the ongoing discussion as a tool for their microteaching throughout the semester. What made this so fascinating and thought provoking for me was my surprise when two ITAs from western European countries, one a STEM major and one humanities major, both consistently questioned the SCL based pedagogies that we were covering in the course. As I reflected on my surprise, I needed to acknowledge my own cultural biases and assumptions in dealing with students from Western education traditions and those from traditions culturally dissimilar to my own. Unintentionally, I came to realize, I assumed that students educated in Western, Socratic-based traditions would be more open to SCL theories and techniques than those from more communalistic cultures. My interest in the complexities of appropriation deepened when I started to reflect on the multitude of factors that are at play when a teacher, in this case the ITAs, decides which concepts and tools to use in their own teaching practices. I give my background, and tell this story not only to reveal the genesis of this project, but also to expose my own background, interests, and subjectivities for the reader so that they can draw their own conclusions from the results of this study (Stake, 2005).

CHAPTER 4: RESULTS

In this chapter, I will begin with a discussion of the TFITA program beginning with its genesis at Regional University. Due to its centrality in the teaching experience of all eight participants in this study, I will examine the course contents through an analysis of its syllabus. While I reviewed the microteaching recordings of all eight participants, my analysis of the recordings will only be used as an additional data point when appropriate in the narrative. The decision to use the microteachings as an additional data point, and not as a current focus of the study, was made because the microteachings were considered part of the participants' past participation in TFITA, and not a factor in their current activity systems. I will then present the data collected from individual, semi-structured interviews with all eight participants in this study. This chapter is followed with case studies of three of the participants, Maria, Sara, and Neel, which includes a more in-depth, narrative discussion of their cases. The general themes identified in this chapter are will be discussed further in Chapter 8, along with those emerging from the cross-case analysis of the three case studies.

The TFITA Program

As mentioned earlier, the centrality of the TFITA program in the experience and activity systems of the participants requires an examination of the origins of the program, followed by a review of the contents of the program. In presenting this information, I hope to make clear the role of the program as a point of influence for the ITAs in their decision-making process regarding the use of SCL in their subsequent teaching.

The TFITA program at Regional University was created in the early 2000s as a cooperative venture between The Graduate School and the Regional University Parents' Committee. At that time, members of the Parents' Committee felt that there was a problem with the communication skills of some ITAs that was negatively impacting the grades of undergraduates who took their classes. To help ameliorate this issue, the Parents' Council committed $10,000 to the creation of a pilot program aimed at increasing ITAs' communication skills. With these funds, the Graduate School created and implemented a pilot program in 2001. With the success of pilot program, the Graduate School funded the program as TFITA in 2003. While there have been some minor changes and additions to the curriculum, it has had the same focus on language improvement, cultural differences, and teaching strategies since its inception.

TFITA classes are semester long, 2 credit pass/fail classes offered through the university's graduate school. TFITA is modeled on the TA development model (Hardre, 2012), a longer-term model based on the ITAs' development of a teaching identity. International graduate students from any discipline may take the course whether or not they are currently acting as teaching assistants. There is only one department at Regional University, the statistics and operations department, which requires their ITAs to complete the course. The TFITA program equally emphasizes intercultural competence and communication in the American classroom with pedagogical skills. In line with both university goals and research-backed best practices, SCL, particularly active learning, is the focus of the pedagogical portion of the TFITA course. SCL is introduced early in the class in order to allow the ITAs to use SCL based methods in their assignments, including their microteachings.

In an effort to not only teach SCL methods, but to have the students learn through them, SCL is used as the class pedagogy, "The course is facilitated through active learning techniques. These techniques include microteaching practice sessions, discussions, case study analysis, self and peer evaluation, interactions with current TAs, linguistic guidance, role-playing, journal reflections, and conversation logs." (Course Syllabus, Spring 2019).

As part of the class, ITAs are expected to give three microteaching demonstrations. The stated purpose of this activity in the syllabus is to increase their confidence in front of a classroom, identify areas of improvement, and document individual progress in the course. ITAs are given instructions to utilize SCL based techniques, such as active learning, in their microteaching demonstrations. Microteaching demonstration assignments include "Defining a Term", "Using Visuals to Explain Concepts", and "Teaching a Process". At the completion of each microteaching, it is anonymously rated on a standard rubric by the classmates and instructor/s in the TFITA course. In a follow up session, the course TA and the ITA discuss the microteaching and together review the aggregated results of the rubric. All microteaching demonstrations are also videotaped with the intention that the ITA can review their teaching methods, style, and perceived effectiveness.

In an analysis of the topics and activities of the course, three main categories emerged from an examination of the course syllabus; 1) SCL-based topics, 2) topics based on the specific needs of the ITAs as international instructors, and finally, 3) general teaching topics.
Course topics and assignments that support the use of SCL pedagogies included:

- Student-Centered and Active Learning – What is it and Why is it important?
- Writing Learning Objectives using Bloom's Taxonomy
- Higher Order Thinking Skills

- Hooks and Scaffolding
- Active Learning Techniques
- Getting Students Involved
- Assessment of Learning
- Active Listening
- Learning Styles
- Listening and Responding to Student Questions

Course topics not directly related to SCL, but instead meant to engage the ITAs in a discussion of their specific role as "International Teaching Assistants" were meant to focus on the roles of intercultural communication. These included specific tips for how to overcome accents (both the accents of the ITAs and sometimes the accents of their students) and linguistic difficulties. The role of the ITAs' educational histories in their teaching and classroom expectations were also included in this category:

- Knowing Your Students – Student characteristics in today's American University
- Comparing cross-cultural differences in student/teacher interactions
- Characteristics of a good teacher – a cross-cultural analysis
- Discipline specific pronunciation practice
- Compensation Strategies
- Classroom Expressions and Terms
- Non-Verbal Communication
- Orientation Cues
- Undergraduate Culture and Idioms Students Use

The third category included content that could generally be considered relevant for any instructor, but is not SCL-focused:

- Pedagogical Content Knowledge
- Organizational Cues
- PowerPoint and Visuals
- Grading and Providing Feedback to Students
- Dealing with Challenging Student Issues

Additionally, the ITAs had two outside-class assignments that encouraged them to examine teaching norms in their department. The first assignment was to observe an undergraduate classroom in their department. The second assignment was to interview an experienced TA in their assignment. As will be discussed in the following chapters, some ITAs found these assignments beneficial, while some received mix messages between the pedagogical goals of TFITA and praxis in their department.

Participants' Perceptions of the Factors Influencing Their Appropriation of SCL

Starting with broad themes that emerged during open coding of the data, I utilized CHAT as an analytical framework to categorize the themes into points of tension and congruency (interactions in the system that served to support the participants' appropriation of SCL). As a result of this, I identified a common congruency across the participants, and four main points of tension from the themes that emerged during the open coding.

Beginning with a discussion of the impact of the participants' *outcome/motives* on their Activity Systems, I review a singular point of common congruency, namely the participants' overall stated acceptance that SCL is superior to teacher centered learning as supported by research. I then examine the tensions that the participants perceive as inhibiting their

appropriation of SCL in their teaching. The first tension exposes the ways in which the *tools* of SCL and the formal and informal *rules* regarding time, as well as the cultural norms of their departments, influence the participants' beliefs about the efficacy of SCL. The second tension revealed in this study brings to the fore the importance of the participants' sociocultural influences and the difficulty some of them have in working against this tension. The third and final tension concerns the *tools* of SCL and the *division of labor* between instructor and students in the classroom, and how the phenomena of Academic Entitlement (Sohr-Preston & Boswell, 2015) influences the teaching practice of some of the participants. Table 6 presents a detailed explanation of each part of the Activity System being used to analyze the data.

Table 6

CHAT Components

Unit of Analysis	The process that is being examined. In this case, the process of ITAs deciding on pedagogical tools to use in their teaching.
Intended Outcome	Variable by case study participant.
Object	The subjects' teaching practices as ITAs
Subject	A person or group of people working toward an object. In this study, each participant is an individual subject with their own Activity System.
Tools as Mediating Artifacts	Tools can be either conceptual or practical in nature. In this study, the conceptual tool being studied is SCL. Any SCL related tools, such as active learning, are considered a practical tool.
Community	The social basis of the activity. Communities are consistent over time and reenact ideologies and histories. The communities involved in the participants' individual Activity Systems include Regional University, Ocean University (in Maria's case), and their individual departments (including faculty and peers).
Rules	The formal and informal procedures, norms, and shared conventions found in the community. Examples of formal rules include the requirement that ITAs teach a specific curriculum in a set amount of time and requirements for the ITA to complete their own research in a set amount of time. Examples of informal rules include cultural norms about teaching in the subjects' department and discipline.
Division of Labor	The hierarchical relationships involved in the subjects' process of working toward the outcome. In relation to this study, the division of labor refers to the ITAs as instructors and the undergraduates in their classes.

Congruence*: *Participants Believe in the Conceptual Underpinnings of SCL

Overall, all eight participants stated that they believed that SCL and its associated practical *tools* are superior to teacher centered learning and ideally should be used in their teaching practice. When I asked Lia her feelings about SCL, she recalled her own undergraduate experience in a lecture-based system and then summarized what many of the other participants said in their interviews:

> So, I think the positive side is that of course you can check if somebody is much more involved. You can completely check out if nobody is paying attention to you. I remember sitting in those big auditoriums and people would be playing video games on their computers and whatever, right? But, if you have assignments where you're paired up with two or three and you have to discuss something, or you have to work together and write up lists and then afterward show the results in class, you have to be participating. There is no other way. You also have some peer pressure because your fellow students don't want you to slack off while they are picking up all the work, so I think that's good. I also think it's good that you memorize much longer what you've been actively working on. I don't remember 80% of the classes I ever took. I was just taking notes. But I feel like if you actually did something, and you went up in front of the class and you presented something, or you debated something, or you worked on something, you will still remember it five years later, or 10 years later. So, all of those are excellent things.

While discussing his thought process in determining how he was going to teach his first class, Arun reflected on his exposure to AL in the TFITA class, and the subsequent influence that research on him:

> Now, if you design a course, the question is how should you go about it? There's some literature on active learning says this works better than traditional classes. There's research showing that, this is not something I'm used to, but I should do it because research says so. That's why I decided to structure the class in that way.

A few of the other participants also expressed the thought that traditional, lecture-based teaching resulted in students not being able to remember the course materials soon after it was taught. In particular, Sam used his time as a tutor in South Korea to back this belief:

> And also, even though it was not a university, I also taught basic statistics for about 10 years, and I have seen a lot of students from my classes. And I believe that many of them forgot what they learned from the statistics course, because they learn a lot of stuff in a very short time without applying it.

The positive responses of the participants need to be tempered not only by their subsequent discussions about actually appropriating SCL, but also by the fact that either I had been their instructor in the TFITA course or they knew about my former position there. The notable exception to this was Lia, who specifically used AL in her classes as an ITA, but only because the faculty requested that all of the TAs do so. Although in the quote above she was able to articulate the reasons that SCL would be beneficial to student learning, Lia did not temper her feelings for SCL or what she felt she had learned in the TFITA program when she stated, “Where do I get my inspiration from? I have to be honest, I don't think that the [TFITA] class directly influenced me that much”.

Despite the fact that most of the participants believed in the conceptual underpinnings of SCL, most of them identified tensions that precluded them from using it, or its related tools such as AL, to the fullest. These tensions have been grouped, and will be discussed, using Activity

System terminology as Tools vs. Rules, Tools vs. Subject, and Tools vs. Division of Labor. Prior to this, however, I will discuss the relevance of outcome and motive, used synonymously in this context, on the participants and their activities.

Outcome

Consideration of the general tensions that emerged from the participants' interviews needs to begin with a discussion of their *outcomes*/motives while teaching. Grossman et al. (1999) point out that, "Multiple and competing desired outcomes often coexist within an activity setting, though typically some predominate" (p. 7). Various members of any single activity setting (the *subject*, *community* members, formal and informal *rule* makers, the *division of labor*) can all maintain different desired *outcomes*, a condition which can and often does create tensions in the system as will be discussed subsequently. An example of this could be the case when instructors and students maintain competing *outcomes*/motives for a class. While the instructor's *outcomes*/motives in using a particular teaching tool such as SCL may be to facilitate a deep understanding of the class content, the desired *outcome/*motive of the students may be to get a good grade with the least amount of work. Due to the additional cognitive and performative demands inherent in SCL, many students state that they prefer traditional, lecture-based classes and don't feel like they are learning as much when SCL methods are used, when in fact the opposite is true as reported in existent research literature (Deslauriers et al., 2019). This competing *outcome*/motive creates a tension in the system for the instructor when considering teaching practices before any other influences are even considered.

This study also reflects the issue that while general themes were found among the participants that reflect their particular experiences within their own activity settings, there was no overriding consensus regarding *outcome*/motives among the participants. While the *object*,

namely the enacted teaching practices of the participants, is identifiable as the focus of the study, each participant identified a different *outcome*/motive when deciding whether to appropriate SCL in their teaching, when they were able to articulate one.

To highlight the relevance of differing *outcomes* has on the subsequent discussion of tensions as experienced by the participants in their individual activity settings, I look at examples of the varying *outcomes*/motives that some of the participants identified in regards to their teaching practice. Neel reflected upon the evolution of the *outcome*/motives he had for the students from the start of the class to the end:

> When I began the course, I thought that I would want to make students understand the entirety of the material well. But now that objective has changed to just making sure that they understand some ideas from statistics, and basically, they still have the enthusiasm to want to learn more.

According to Neel, this modification in *outcomes*/motives mediated his teaching practice as he felt more motivated to use SCL-based, interactive lessons with the students to make the content relevant to the students and to help ensure their understanding and make them less fearful of statistics concepts.

Similarly, Sara experienced an evolution in her *outcome*/motive for her class, stating that at the beginning of the semester she felt that she had purely utilitarian *outcomes*/motives in mind while planning how she would teach the class:

> But at the time I was like, I don't know how I'm going to teach. It's just on gender and race. So just teach whatever. Let's say something in front of everyone get it done. That was the initial, real honest goal that I had in the very beginning.

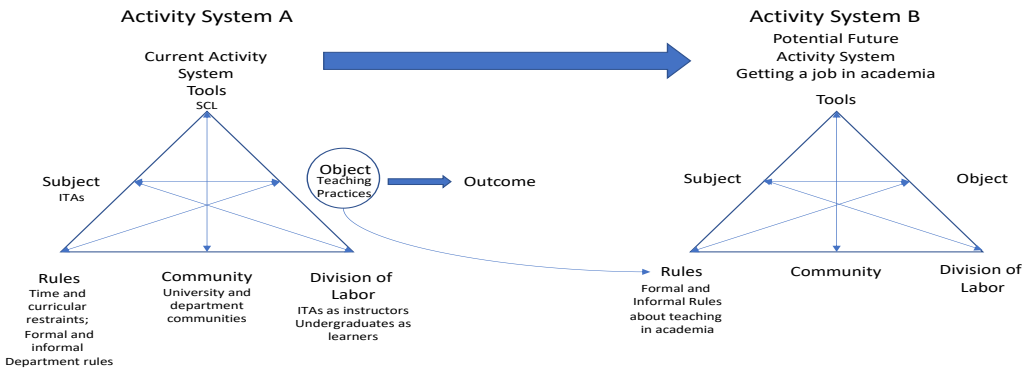
When issues of race were made personal for Sara over the course of the semester with a family member, the experiences changed her thinking, “So, like, I did have like these little bits of experiences that I started that to, like, think that these issues are important.” This helped to mediate her outcomes/motives for the class and clarify her goals:

> I think the biggest thing is to expose them to different perspectives, so it's not just America-centered but global or maybe not global. But something “back-end” that I can provide is the kind of comparative view from the Japanese side so they do not just bring their American yardstick to look at other cultures, but also to see their own cultures.

In addition to experiences during the course of their classes that affected their outcomes/motives, both Neel and Sara expressed a long-term desire to hold a faculty position that entailed both research and teaching. For both participants this impacts an adjoining activity system (Activity System B in Figure 6) in which the *object* (or goal) they are working toward in Activity System A affects one of the elements in Activity System B. In this case, the class they taught at the time this study was completed (Activity System A in Figure 6) interacts with the *rules* in Activity System B. In other words, both Neel and Sara came to view their *outcome*/motive as being connected to the future activity of acquiring a faculty position teaching. This overlap between activity systems provides an additional mediating factor for the participants in their appropriation of SCL.

Figure 6

Example of the interaction of an individual participant's Activity Systems



As a counterexample, Lia exemplifies a participant with a utilitarian *outcome/*motive in her teaching. She admitted that because she is not planning on a career involving teaching, she often puts in the minimum amount of effort into teaching and just tries to get through the content:

> …full disclosure, I am not planning to go into academia myself. So, I am not all that passionate about making my own syllabi and getting everything out of it that I want to. So, for me that's not where my joy comes from, so I just do what I need to do, and I enjoy teaching the classes, but I am not that involved that I'm also going to look up extra stuff just because I have such a passion for teaching. And then for people who want to teach their own class, I think they spend more time in it, because they choose to do this, and they want to have a diverse resume in where they taught different classes, so they can show their potential, future universities that they have a lot of experience teaching different participants. So, they want to have impressive syllabi to take and show these

employers. They want to have experience teaching different participants, and they want to have experience using different methodologies to teach the participants. I think those people invest a lot more time in this particular area because that's what they want to do.

Because Lia views the *outcome*/motive of this activity system as end-state and not related to a future goal, there is little to mediate the barriers that she feels in regards to implementing SCL, a situation that is discussed below.

The following is an examination of the tensions and points of conflict that arose from the participants' perceptions about what influenced their teaching practices and appropriation of SCL techniques. Because this study is explicitly interested in the appropriation of SCL *tools*, the focus of my analysis remained on tensions involving the *tool*.

Tools vs. Rules: Issues with time and cultural norms of their departments preclude appropriation of SCL

The participants are ultimately uncertain about the effectiveness and applicability of SCL and associated *tools*, with seven out of the eight participants discussing the fact that even after participating in the TFITA class, they did not feel confident in being able to use it in their teaching due to formal and informal *rules* about time, as well as the cultural norms of their field and department. The participants' perceptions regarding obstacles related to the rules about time can be grouped into two general tensions, the first being general time pressures they felt as a graduate student, and second, the belief that SCL takes more time to plan and implement. To begin with, all of the participants discussed the pressure they felt between working on their research and the time required to teach, a requirement for all but one of the participants in order to receive funding for their graduate program. Both Neel and Arun discussed the difficulties they had finding a balance between teaching and research. Arun recalled that teaching a class the prior

semester had taken up at least 25 hours a week. In this quote he discussed its effects on his research goals:

> Unfortunately, my research suffered. I had some research goals as well; I wanted to make progress on the two projects I had, and usually we have some sort of weekly meeting on one of the projects. Some sort of pressure in order to get in some materials in those meetings. So sometimes I had to call off those meetings or something like that.

Neel's comments will be discussed in depth as part of the case studies in Chapter 5. In a similar vein, Robin lamented about the overall lack of time she felt she had to prepare and teach her classes:

> There are so many things that make it [teaching] hard. I don't have enough time to prepare, because I always have to do my things. I did some adjustment, because I always spent too much time preparing my teaching. I feel like I have a responsibility to students. It's weird if you stand on a stage and you can't speak professionally. If you stand in front of the class, and speak like you're an idiot, it's totally not professional. I always have to prepare more than for my own seminar than when I was a student, otherwise I feel like it's not right.

When asked how the need to balance their time between teaching and research affected their appropriation and use of SCL in their teaching, most of the participants noted that SCL would require more time in both planning and in classroom implementation. Several participants, such as Sam, commented that while they would like to utilize SCL in their teaching, they did not feel that they could do so within the time constraints of the established curriculum and the knowledge set of the students at the beginning of the course:

> And then second thing was I really liked to learn about active learning skills. Although, it's a little hard to apply it in my class because the curriculum is already designed, and I have to finish it during the semester. And also, I guess our departments thinks that, although they [the students] didn't all take AP [statistics] courses [in high school], they could still follow the material very quickly, so they have a very aggressive curriculum. But when I'm teaching the courses, I realized that the students who already did AP [statistics] courses were okay with the curriculum. But for the other students, it was not enough, so I had to spend more time and that is the problem. I couldn't use active learning because active learning sometimes takes too much time when compared to just one-directional teaching.

Lia expressed the belief that AL especially takes too long to implement, a belief echoed by a number of participants. Instead, she found that lecturing is the fastest way to have the students learn the content:

> And then the negative side is that it takes a lot of time away from class time. Sometimes one exercise can take 15-20 minutes. There's so much I want to do, so much I want to say, and I have to sit here and wait for people to write 10 words on the list. It's going to take forever. It could have been done in two minutes. I feel like I could do a lot if I didn't have to do that.

When asked why she thinks that a lot of the faculty in her department do not use SCL in their teaching, Lia again identified time constraints as the main culprit:

> So, I think that most professors will feel that there's a lot of knowledge on this topic that they want to communicate, so they keep on lecturing. There's dates and names and places and events and there's all kinds of stuff that they want to get out there and they start

> talking very fast because it's a lot of information that they want to tell and there's only so many minutes that they can do it in. I feel like their problem is also that, and that's also what I hear from my peers who are making their own classes, that fifteen weeks is too short to present so much stuff that if they would do active participation projects the whole time, exercises, that there wouldn't be time enough to get everything across that they want to, so that would take away from their teaching time. They don't have time to sit there for twenty minutes and have people do an exercise and then come back. There's just not enough time.

Sara was the notable exception among the participants in her perception that SCL took less time to prepare than a tradition lecture. Sara felt that preparing a lesson based using SCL took her less time than preparing a lecture, "In a sense that is easier for me to prepare. I don't have to prepare a 50 minute performance."

Almost all of the participants believed that due to time constraints presented by the curriculum content, the added time needed to plan and implement, and the students' baseline knowledge, SCL would be difficult to appropriate in lower level courses in their field. I go into more detail regarding this in both Maria's and Sara's case studies in the following chapters, but in the following quotes both Lia and Sam also identified the dual tensions they felt in trying to use SCL while needing to cover a lot of basic material in a short amount of time,

> But yeah, I think it is more difficult to plan. If you only have an hour and a half twice a week, and you have a whole textbook that you want to follow, there's just not enough time. You already have to get rid of so much stuff during the course of the semester. There's just not enough time to get rid of even more stuff because you want to spend half an hour on discussion or other things, especially in big introductory classes, the big 101

> first year classes. Maybe if you go to smaller classes for third years who are majoring in your specific field who have the big background knowledge already, you don't have to explain what Islam is, you can really go into case studies. I think then, it's more easy to have them watch a movie, read a book, and then come back to class and discuss it and share your thoughts about what you have read and what you know already about the religion, than it is in the first big overview class. There's just not enough space left to also go into people's opinions if you have to give a big introductory class. (Lia)

> So, when we are teaching basic courses it's really not easy to apply active learning skills, although we are trying, but it's not easy. So, as the end of semester gets closer, we are in a hurry, so it's really hard to apply active learning skills especially at the end part of the semester, I guess. (Sam)

Taken together, the tensions between the *tool* of SCL and the formal and informal *rules* in the system provide significant perceived barriers for the participants to overcome in their appropriation of SCL. Previous research by Henderson and Dancy (2007) support this perception by the participants. They found that the constraint between the time needed to use SCL in covering a given curriculum, especially in a lower level foundational course in which the students have little to no previous knowledge of the subject, is one of the barriers most cited by instructors in their inability to implement SCL.

As will be discussed further in Chapter 6, tensions regarding time and the use and implementation of SCL are widespread in academia and provide one of the most powerful obstacles in its widespread adoption. This leads into the next set of tensions regarding teaching norms in the participants' departments.

The next set of tensions, involving the *tools* of SCL and the *rules* surrounding the cultural norms of the participants' academic departments, also played a significant role in mediating the participants' decisions regarding their teaching practices. Many of the participants stated that while they had been exposed to research regarding SCL in the TFITA class and had practiced it during the class microteachings, they typically did not see it being used in their departments by faculty. Additionally, some felt that they received mixed signals about teaching effort in general from other TAs. Finally, participants described department supported seminars and classes for TAs that did not address SCL, or much in the way of pedagogy at all.

The conflict felt by the participants between the use of SCL as they learned and practiced it using it in the TFITA class and the teaching norms of their department can be described using the "two-worlds pitfall" theory. Typically used in the discussion of student-teachers in the K12 grade levels, "two-worlds pitfall" (Feiman-Nemser & Buchmann, 1987) describes the competing set of expectations and norms faced by student-teachers between the world of the university teaching program and their school setting in which they are interning. Faced with the need to conform to one set of norms and rules, researchers (Feiman-Nemser & Buchmann, 1987; Grossman et al., 1999) have found that novice teachers chose the rules of the school setting they are interning at because this is what they view as most beneficial for their career. Similarly, the participants in this study face a two-world pitfall between what they learned in the TFITA program, specifically research in their field supporting the use of SCL and its associated tools such as AL, and the norms of the department in which they are novice academics.

An example of this is reflected in Neel's discussion about what he perceives to be a barrier to his appropriation of SCL. Having learned about SCL in TFITA, and having read the

research that says that SCL can have positive learning outcomes for students learning statistics, Neel is still unsure about its efficacy and his own ability to implement it:

> I read one paper from the Journal of Statistics Education where they're trying to teach sampling, which is an important concept. It was like an active learning approach to statistics. So, there, they had certain examples. So, it was an example of, you would give pictures of different, say, people and ask students to guess their age in groups of five. It felt like a good exercise, but I was not sure how effectively I would be able to implement that, that particular exercise. That is why I think I did not try it.

Neel identified that a part of his uncertainty with the effectiveness of SCL has to do with the lack of faculty in his department utilizing it in their own classes, saying "I've heard that one of our new professors does it. I haven't interacted with them though." He was reluctant to risk too much of either his person time or the class time to full appropriation of SCL without either the example of a faculty member, or some sort of tacit approval or proof that it will be beneficial for the students, "Yeah, that's... I mean, I could have been the start, but then I need to know that it works when I do it, then I'll happily do it."

In the same department as Neel, Sam discussed the influence that he felt from the statistics department to prioritize his research over teaching:

> When it comes to a faculty job, they tried to focus on the research, although they require us to provide more materials about our teaching skills. But, still it [teaching] is not the main thing, right? So, all they consider first is the result of the research topics, the journals and those kinds of things. And then if they are not good at teaching, they will pass through one more time, but the main thing is the research. And also, when they are hiring people, they try to invite candidates to the university and then have them teach.

> And then, they are not focused on the teaching skills. They are focused on the topic, and how he or she handled the problem. I guess that our department is also focused more on research than teaching.

Similarly, when asked about the teaching style of the faculty in her humanities department, Lia responded that she rarely sees the faculty do anything other than lecture:

> But I also think it's a generational thing, because I feel like the older professors do have more of that hierarchy and just come in to class, give their talk, and then leave again. Not really involved in the students' lives, that's something for TA's to do. They are going to be "old guard," they're used to giving talks and then leave again.

Most of the participants also confirmed that their department offered some sort of class or seminar that was meant for graduate students prior to teaching a course; however, none of the participants found it particularly instructive in pedagogy, much less SCL-based pedagogy. Instead, as described by a number of the participants, the focus of the class or seminar was to provide information to the graduate students about starting an academic career. While it can be assumed that the topics covered in these types of classes are useful to the ITAs, according to some of the participants, they left them feeling unprepared to teach. Maria, in particular, felt that her department's class downplayed the importance of teaching (this will be discussed more in her case study in Chapter 5). Daniel also discussed that while teaching was addressed in the class offered in his department, the pedagogical focus was on lecturing:

> That class is called Pro Seminar in Doctoral Studies. That's the name of the class. It involves teaching, but it also involves other things about how to be a successful academic. We did have teaching lessons, but also, we had research lessons like where to publish, how to submit an RNR, how to go to conferences, how to interact with

> colleagues. All things that are involved in being a PhD student, and one of those things is teaching. Within that class, we had some pedagogy, but it wasn't pedagogical only. It was also about research. It was also about how to be a successful academic. It did have a pedagogy component. That was important. For that class, I had to do a lecture, for example, to an undergrad class.

When asked what other important details he remembers from the class, Daniel's response perhaps reflects beliefs in the department community regarding the importance of student evaluations over pedagogy:

> For example, when you are applying for a job when you're in your third or fourth year, one of the things that universities request is your teaching evaluations. That's why, for example, you should bring cookies, because that will affect your teaching evaluation. Be as nice as you can.

When asked about whether her department had offered any training or preparation for graduate students before they started teaching, Lia's response underscored the lack of preparation that some teaching assistants experience prior to teaching their first class:

> But when you arrive, nope, you don't get any information. I had no idea what a TA was or what you had to do. They just shoved me in front of a classroom and they were like, "Teach!" And that's it. No explanation. So, I had to ask a lot of people like, "What are they? What do they want us to do? How does that work?"

As discussed by a few participants, other members of their department community, such as other graduate students, were also important influences to take into consideration in the participants' decisions regarding their teaching practice. When I asked Robin to describe how

others in her department might have influenced her teaching experiences at Regional University, she was extremely candid in discussing a conversation she had with one of her fellow TAs:

> Beside this part [the curriculum], everything is decided by yourself. You can be a TA like, "Mm-hmm (affirmative). Good. Next one. Yeah." I still remember what one of my upper classmates told me, "If you don't kill him, don't punch him, don't rape him, you'll be fine." Yeah. It's “do no harm”, and then you get your money. Don't worry about the evaluation. Whatever. I mean, he used these words try to encourage me, because I was depressed because I felt like I was a bad TA the first year. He was just like, "Relax. They won't sue you at the end if you don't hurt them." In another way, it means, there's a lot of space to address what kind of TA you want to be. It won't influence your general life, other people to judge you except for your students.

It is interesting to note that Sara, who exhibited a high level of appropriation of SCL pedagogy in her teaching, came from a department that she identified as having a significant number of faculty who also utilized SCL pedagogy. Sara’s case will be discussed more in Chapter 5.

As mentioned previously, in Lia’s case, it’s a matter of “do as I say, not what I do” when it comes to teaching methods. While the department faculty almost solely utilize a lecture-based pedagogy, as a whole it encourages, and sometimes requires, all of the TAs to engage in SCL and AL:

> So, a lot of professors tell us in our weekly TA meetings, "I want you to get them to speak as much as possible. I want you to have discussions. I want you to have them speak their mind and think about participants and go around, and I want you to put the chairs in a circle so that people can face each other and have an active participation discussion.”

So, I feel like a lot of professors see that problem, and see that need, that they cannot provide that themselves, so they really want us to do it instead.

Taken together, the influence of the departmental community exposes tensions that can be described by the two-worlds pitfall (Feiman-Nemser & Buchmann, 1987) and is discussed further in Chapter 8. Additional tensions involving the sociocultural histories of the participants are next examined the participants' perceived influences on their teaching practices.

Tools vs. Subject: Tensions Brought on by the Sociocultural Histories of the Participants

As described by Grossman et al. (1999), the individual characteristics and histories that the *subject* brings into the current system should not be overlooked as these characteristics and histories work in conjunction with the current contextual mediators involved. For example, when discussing what they believed to be obstacles in their appropriation of SCL, one of the most commonly cited reasons cited by the participants (while not naming it as such), when discussing what they believed to be obstacles in their appropriation of SCL was the influence of their own apprenticeship of observation (Lortie & Clement, 1975). When discussing SCL, most of the participants mentioned the vast difference between the role of the instructor in their own educational experience and the role prescribed by SCL. For instance, when specifically asked whether she feels that she teaches in a more teacher-centered or a student-centered manner, Robin's answer reveals her awareness of the influence from her own educational experiences in her native Taiwan:

> [I am] Teacher-centered, because of my 30-year experience in Taiwan. I am still ... but, it depends on the definition of student- and teacher-centered. It's hard. Right now, I'm trying to make myself half and half. Teaching student-centered always makes me feel chaotic. The population of students every semester are different. You can't just empower

> them, let them pick up whatever they want to learn in the class. You still have to remain in control to a certain point. I don't know if I can say I'm teacher-centered 100% or student-centered 100%. But, compared to other more liberal TAs, I'm probably teacher-centered.

Other participants, such as Arun, were unsure about how to use AL specifically and pointed to the fact that he did not have first-hand experience with any kind of AL in his past educational experience:

> One, there's not been much group work in my studies at all, since undergrad. It's been mostly just ... You can solve problems with other students, but it's not required. There's no group projects at all, so that's something I'm not used to, overseeing group projects. Or even group learning. I'm more used to just solving things on my own, because that's how it's been since, I don't know, solving math problems in high school to now. So yeah, group learning, I don't know because I've never done it much.

Lia acknowledged that she is supposed to be using AL when she teaches but also seems to recognize that she defaults to lecture due in large part to her apprenticeship of observation:

> And then I also Googled, I just searched on the internet things to do, but it's hard because I still find myself defaulting to lecturing, even if my professor says, "I want you to have a lot of class discussion or a lot of lively discussion." I find myself defaulting to go to the board and start lecturing and then I'm like, I should get them involved. I should ask them questions. I forgot again.

In an additional example of the tension between the *tools* and the sociocultural history of the participant, the linguistic and cultural barriers to utilizing SCL as perceived by the participants brings to light the unique tensions experienced by ITAs in their role as graduate

teaching assistants. For example, while some of the participants were very fluent in English, two in particular, Robin and Sam (both of whom had heavy accents), identified linguistic barriers in their teaching. Sam spoke about the linguistic issues he felt in his teaching in a general way:

> Although I believe that I'm really good at teaching in Korea, it is a totally different story teaching in English, because it depends...you need to use some kind of humor to extract their attention. And also, you have to explain things more fluently so that they can understand.

My questions to Robin about how she felt her English language ability affected her teaching at Regional University elicited a particularly strong response. Her response incorporated her hesitancy with English, her feelings about the difficulty in using AL specifically considering her language abilities in English, the pressure she feels to ensure that her students pass their exams, and finally, her self-perception of her teaching mode:

> We are required to teach since our first year. For me, it was like trauma. I could barely speak English, and the first year I had to teach. The second part, I was kind of wondering or hesitant because of the language issue. I still remember the first time I had my TA job my first year. The probably was I could barely understand what the students were talking about. How can I make them do the active learning, because I cannot understand their questions? How can I use these all the methods best, with my language ability? For me, it's like, [to use active learning] you have to follow student questions closely and use that question to throw another “bolt” to the students to move on deeper and deeper. I felt like I cannot really do that. I felt like they would go astray. Deep in my heart, I had to pull them back, back to the topic I really wanted to talk about. Because, in the end, there's still an

exam. For me, I still have that kind of thinking. I have to make you understand the things so at least you can pass this class. I feel like I'm still teacher centered-ish.

In addition to the linguistic issues felt by Sam and Robin, almost all of the participants brought up their perception that the cultural disconnect that they felt between themselves and their students affected their ability to not to communicate with students, but also to engage them with content material that the students would find relevant. In a comment that reinforces research (Bauer, 1996; Ross & Krider, 1992) positing that the real loci of undergraduate resistance to ITAs involves culture more than language, Sam mentions that one of his officemates who was raised in the United States, but is of Asian descent, was able to connect with the students much more readily than he is:

> Okay, so, in my case, I'm sharing my office with some other teaching assistants and one of them was Chinese, but was born in the United States and he was really good at English. He was very familiar with the culture here. I think that there was some kind of difference but still, it comes from us, not from your students. I mean, because in appearance, he was also Asian, because he's Chinese but still, he's very good at speaking in English. And also, he was very familiar with some ideas they have, what they have in a university student's mind or something.

This feeling was reiterated by Daniel, who pointed to one of the big cultural differences he felt between Chile and the U.S., "For example, I didn't know how much a big of a deal it is here, the sports culture. That's just something that we don't do."

The issue of being able to engage the students using culturally relevant topics and engage in open-ended discussions is particularly important in this context, as they are both central in

SCL and many of its associated tools. Neel was able to identify his lack of understanding of American culture as a key component in his lack of comfort in utilizing AL in his classroom:

> Many of the American graduate students can... they know more about the undergraduate experience. They also know more of American cultural references that... so, these are two things that I'm not... that I don't know much of. So, A, the undergraduate experience in the U.S, and, B, the U.S. culture. They can often give, say for instance, during their exams or even during the lecture, they can also give references. They often reference these two things, which probably helps students engage with the material more. I tend to not do that very much. Even if someone tells me that they... even if, say, someone tells me, "Hey, this is an example. This is a football example that you think students would like." Since I personally don't know whether students would like that or not, I would hesitate. I would be hesitant from giving that example because, somehow, I feel that, I mean... I only tend to do things which seem natural to me, seem more authentic to me.

Again, Sara provides a counterpoint to many of the participants' feelings of tension arising from their sociocultural histories and influences. She is married to an American and speaks English at home frequently with both him and his family. This impacts her linguistic abilities in English, including giving her a comfort level with humor, a distinctly difficult topic in a second language (Bell, 2002) and an important tool to create connections with students. Moreover, according to Sara, it serves to inform her cultural understanding of the United States by providing her with an "insider's view" of American culture. This influence reveals itself to be an important and positive mediating factor in her comfort level with fully appropriating SCL in her teaching.

The influence of the participants' sociocultural history, in the form of their apprenticeship of observation, their linguistic abilities, and the cultural knowledge they bring into the activity system, provide additional points of tension in their teaching decisions. The final set of tensions revealed in this study, those between the tools of SCL and the division of labor between the participants and their students, will be considered next.

Tools vs. Division of Labor: **Tensions Arising from the Participants' Role as Instructor and the Undergraduates' Role as Students; Who's in Charge and Why*?***

A number of the participants reflected upon the tensions they felt between their role as instructors, the role of the undergraduates as students of their classes (the *division of labor*), and their appropriation of SCL in their teaching practices. Specifically, participants described the phenomena of Academic Entitlement among their students, which, along with the cost of college-going in the U.S., provided them with negative incentive to appropriate SCL tools.

The concept of Academic Entitlement (AE) among undergraduates in the United States has been discussed in academic literature since the 1980s (Sohr-Preston & Boswell, 2015). AE, sometimes referred to as *student consumerism*, reflects the belief on the part of students that they are entitled to good grades since they are paying a considerable amount of money for their education (Fromuth et al., 2019; Goldman & Martin, 2016; Sohr-Preston & Boswell, 2015). A number of the participants in this study discussed their perceptions of AE and how it ultimately influenced their teaching practices and appropriation of SCL. Daniel articulated what he felt was the business-like nature of the college teaching experience in the United States as such:

> In Chile, our professors are like gods, and we need to adapt to them. However, here, you adapt to the student. It's a business, in a way. You need to treat your client, and your client needs to be satisfied. In Chile, that's not who you are. You are the student, and I'm

> the teacher, and I'm going to teach you this. If you get the content, great. If you don't, I don't care. It's your loss. In here, it's very that client management relationship. I feel like that happens here a lot. I think that because there's that dynamic, professors here are really worried like, "Try to make your students happy, because that will affect your evaluation." Yeah. It's not that we don't evaluate teachers in Chile. We do that. Every end of semester, we need to evaluate them. I just feel it's different.

Lia expressed that she was initially shocked at the phenomena of AE among the American students, and contrasted it with her own experience as an undergraduate in a country where college-going is subsidized by the government:

> The system was very hierarchical as in we would all have a lot of respect for this teacher. We would call them professor. You would not go up to them and talk to them after class unless you had something very important to say. You would not go to office hours

Similarly, Robin's experience with the phenomena of AE among her undergraduate students underscores the additional sense of responsibility that some of the participants felt due to the cost of college-going in the United States:

> Because here, students pay more. You feel like, because they really pay a lot. When I first came here, I was just like, "Oh, wow. You really pay a lot for this school thing," which also made me feel a little bit burdened, because you pay a lot. If I don't do my job well, I will feel guilty. You pay a lot and I wasted your 50 minutes. That's probably something really different. In Taiwan, it's oh, whatever, it's just $1,000 a year.

In her discussion of the way that AE affected her teaching, Maria also made the comparison to her years as an undergraduate in Italy and the experience of the students at both Regional University and at Ocean University:

> They almost felt entitled to a lot of things that we certainly did not feel entitled to in Italy. You do whatever it is that they're telling you to do, and, if you got a bad grade, it's because you didn't study enough. And then you move on. Here, there's arguing about all kinds of stuff. There's arguing about what the assignment is, when is it due, your grading, the curving, "But don't you think it's unfair?" It's because they pay for it. The explanation is, well, they pay for it, so you have to, yes, teach them, but mostly keep them happy. I just thought that was so strange because, to me, that's not how this works. This works as to you want to give them the best possible education that they can have, and, sure, they pay for it, so there are some things you should do like not be absent for class or things like that. But that doesn't mean they get to decide how things are graded or what the assignments are or things like that.

Also in line with the phenomena of AE, Lia and Maria both discussed that they felt that the students thought it was their responsibility as instructors to make sure the students got good grades. This was a marked difference from both of their undergraduate experiences in which not only was it not the role of the instructor to ensure student success, the difficulty of the classes was explicitly tied to limiting the number of students who could graduate in the field. In discussing the differences between her undergraduate experience and her experience as an instructor in at Regional University, Lia said:

> A lot of people go to university and start out in a similar track, but they [the university] don't want 200 people to graduate with your degree every year. I think in my field we started with 150 people my first year, but they make it very tough your first year. The exams are very tough so that half of them or more than that will fail, will have a lot of repeat exams. And most people don't want to do that, and then they drop and they go

> study something else. I think maybe after my second year, of the 150 people maybe we ended up with 80. And then by the time we got to our master's, maybe we graduated with 20 or 22. They always said on your introduction weekend, they said, "Look to the left of you and look to the right of you. Only one third of you will be here at the end. Your neighbors won't be here anymore." Only a third make it through the whole program. It's pretty tough. Everybody can go to university, but you have to work hard.

As an ITA, Lia's prior educational experience influenced her feelings of internal conflict in utilizing SCL:

> For me, as somebody who worked very hard on that discipline in that you have to work hard for yourself and nobody is going to take your hand, I feel like this is a lot of holding someone's hand. I feel like you are adults, why do I have to do these exercises so that you will be learning? Can't you learn that by yourself? Why do I have to be your babysitter so that I'm sure that you get the knowledge? You should study for yourself, you should have the discipline. I shouldn't be the one helping you this much so that you can have the information. You should do this on your own, and if you don't, then you're not cut out to be here.

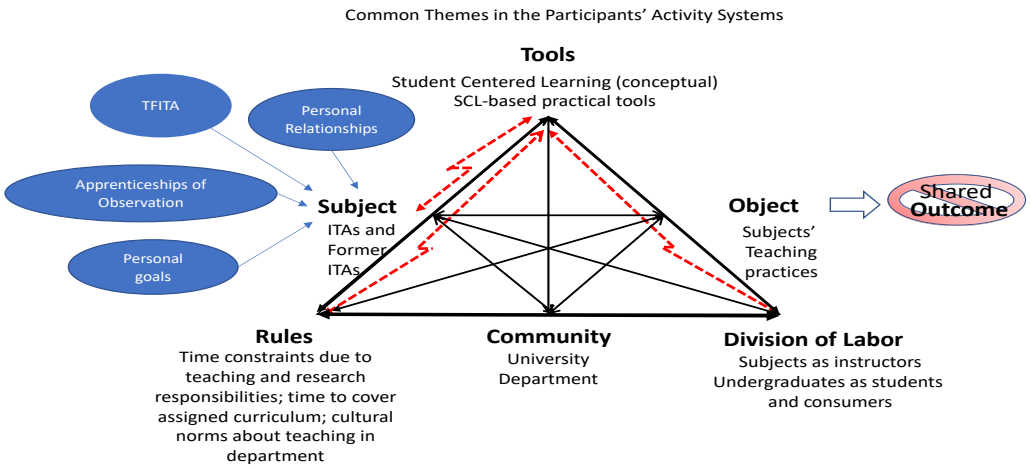
Again, with the counterpoint of Sara, all of the ITAs in this study identified the phenomena of AE among the American undergraduates as something that they were not only surprised by, but as an influence on their teaching practices. The ramifications of AE will be discussed in conjunction with research on undergraduate beliefs about SCL, and particularly AL, in Chapter 7.

As alluded to earlier, the tensions identified in this chapter in regards to time and the cultural norms about teaching in their department, their own sociocultural histories, and the

phenomena of AE all served to limit appropriation of SCL in all but one of the participants in this study (Figure 7).

Figure 7

Common Tensions across the Participants' Activity Systems



The following three case studies of individual ITAs (and one former ITA), Maria, Neel, and Sara, will provide an in-depth look at the factors they each perceive to be relevant to decisions about their teaching practices. Each case study will begin with a brief introduction to the participant and the sociocultural influences that they bring into their current activity system. I will then present each participants' current activity system utilizing CHAT with an eye to identifying tensions and congruences, or positive influences toward using SCL, in the participants' perceptions about what influences their teaching, and in particular, the appropriation of SCL in their teaching practices.

CHAPTER 5: THE CASES OF MARIA, NEEL, AND SARA

In this chapter I will detail case studies of three of the eight participants of this study, Maria, Neel, and Sara. As discussed earlier, all eight participants in this study were asked if they would allow me to observe them teach and conduct at least one follow-up interview. Out of the eight, only Maria, Neel, and Sara were teaching at the time I was collecting data and were comfortable with having an outside observer in their classroom.

Having had prior interaction with Maria and Sara as students in the TFITA course, I was thrilled at the opportunity to observe each of them teach. While they were not involved in TFITA at the same time, each of them was an active and engaged participant in the TFITA program, in fact it was lively discussions about SCL in TFITA with Maria and her course-mates that had been the genesis of this study.

I had never met Neel, an ITA in the Operations Research and Statistics (ORS) department who participated in the TFITA program after I left the program. In an effort to be transparent and maintain trustworthiness as a researcher, I will also admit that while I tried to fight it internally, I did have a preconceived notion of how Neel would teach based on my years co-teaching in the TFITA program. Based on my previous experience with ITAs from the ORS program, I expected to witness a 50-minute long lecture utilizing the same, years-old slide-deck that has a colleague had documented in his research only a few years previously (Christian, 2014). Despite this, I was curious about his teaching practices and grateful that he was willing to be observed and make himself available for additional interviews.

Elements of the Case Studies

In following the precepts of sociocultural basis of CHAT, I will first present the sociocultural histories of Maria, Neel, and Sara through interview data, and at times, through additional information gleaned from pre-existing data from their participation in the TFITA program (i.e., video recordings of the participants' microteachings, scores from microteaching rubrics). The interview data will include a discussion of their educational background in an effort to understand what preconceived notions of education they bring with them into the current setting from their apprenticeship of observation as students in their home countries. The importance of understanding the cultural beliefs about education that Maria, Neel, and Sara bring into the current activity system are highlighted by Grossman et al. (1999), in their CHAT-based case study in teacher education:

> Focusing solely on the setting would overlook the ways in which it is constructed by each person within in, making discrepant cases difficult to explain because they defy the motive of the setting. The question of individual history and identity within settings, then, becomes part of the consideration of their dynamic and evolving nature. (p. 9)

The discussion of the participants' academic backgrounds will be followed by a discussion of each participant's experience in TFITA, with a particular focus on their exposure to and use of SCL pedagogy in the program.

In an effort to bring to light the elements involved in the current, teaching-based activity systems of Maria, Neel, and Sara, I will present a narrative of my observations of the participants' teaching classes. I will then use CHAT to examine the tensions, and possible points of congruence (elements that support the process of a *subject* attaining an *object*), that they perceive as influences on their teaching practices, and in particular, their use of SCL pedagogies.

Starting with Maria, then moving on to Neel, and finally to Sara, I expose the experiences and influences that brought each to make their individual teaching decisions. To organize the discussion, I will use the following format:

- Background
- Sociocultural history
- Participant and TFITA
- Participants' current activity system
    - Observations
- Analysis of participants' activity system
- Discussion of participants' appropriation of SCL

Maria's Story: "They Refuse to Read"

Background

Maria is a single Italian woman in her late twenties who is currently completing a post-doc at Ocean University after receiving her doctoral degree from Regional University. While a graduate student at Regional University, Maria participated in the TFITA program while I was a co-teacher in the course. It was in these classes and discussions that Maria was a part of that the thought for this study began. The class included a wide variety of nationalities and disciplines, somewhat unusual for a program that is usually largely dominated by male ITAs from Asian countries in STEM fields. What I remember clearly from those discussions was Maria stating a strong belief in SCL and AL and her facile usage of them in her microteachings. When I started this project, she had graduated and was working as a postdoc at Ocean University, where I had the opportunity to interview her and observe her teaching. Because I traveled a considerable distance to interview and observe Maria, she was willing to spend more time being interviewed

than the other participants in this study. Additionally, the interviews with her ended up being more conversational than the others, leading to my having more data to pull from when discussing the elements involved in her activity system. Due to this, Maria's story may seem more in-depth than those of Neel or Sara.

Sociocultural History

Prior to college, Maria had always been interested in math and science, and she graduated from a STEM-focused high school in her Italian hometown. As a senior in high school, she spent an exchange year in in the United States (in Arkansas) and knew at that point, if the opportunity presented itself, that she would like to return to the U.S. to study. After her return to Italy, she attended the local university, which also happened to have a STEM focus, and graduated with her bachelor's and master's degrees in a heavily male-dominated STEM field.

In describing her undergraduate and graduate experience in Italy, she portrayed an educational setting that was at the extreme end of the teacher-centered, lecture-based spectrum, and which Maria characterizes as "conservative and unengaging":

> I was in class every day from 8:00 AM to 6:00 PM, Monday through Friday. But I didn't have any homework or anything like that. I just showed up, listened to them. They talked at me the entire day, and then, at the end of the semester, there was one date with the exam, and you either passed or you failed. If you didn't pass, you had chances in the next semesters to take the exam again until the year started over the next year, and then you would have to take the class again. You have to be individually motivated in Italy, I think, to get anything done, because there are no checkpoints at any stage of the semester. You really don't know.

In terms of her undergraduate years acting as her apprenticeship of observation, Maria recognized that the pedagogy that she experienced in Italy was not an environment in which she flourished: “So, it was really an individual thing. I did not work well with that. I didn't like it. I did not perform super well. I survived, but I surely didn't shine in that system.” In discussing the Italian system, she drew a picture of a system that, contrary to encouraging students to graduate, was, in Maria’s view, used to weed out students:

> The first year, first day, we show up, and actually this guy, who was a very good lecturer shows up, first class, and he says, "I don't want to scare you, but I want you to look around yourself. Look to the right, look to the left. At the end of the year, only one of you will be here." He was right. Out of the 96, it was about 30 of us who survived until the end of the year. He was right.

After completing her Master’s degree, Maria came to Regional University for a short-term project and, based on what she saw during that time, knew that she wanted to complete her graduate education in the United States. Her experience as a graduate student at Regional University was also reflected by a more casual relationship with faculty than she had known in Italy. Students were encouraged to ask questions in class, the professors had office hours, and she was thankful for homework. Coming from an environment in which only summative assessments were used, Maria valued the daily homework as a way to engage with the content and use it as a formative assessment. Despite the more casual relationship with the professors, Maria recalls feeling like there was a limit as to how much the faculty felt it was their responsibility to assist students in understanding the content. When, as a new doctoral student in classes for the first time since her undergraduate years, she was struggling with content that she was expected to know, she thought she might receive more assistance from the faculty:

> I was expecting the fact that, because they are being so casual that there would be an understanding around this, and there was not. They kind of were like, "We suffered through this, so now you have to." It's kind of like ... On the one hand "Sure, we're happy to answer your questions," but on the other hand "But you've got to go and suffer through this." I found that to be a little contrasting kind of.

When the time came for her to teach classes as part of her graduate program, Maria was apprehensive due to the fact that she didn't have prior teaching experience. She was also hearing from fellow graduate students that the students at Regional University felt entitled to have a say in how a class was taught and what their grade should be, which was startling to Maria coming from Italy, where there was a large power differential between the professors and the students:

> Here, there's arguing about all kinds of stuff. There's arguing about what the assignment is, when is it due, your grading, the curving, "But don't you think it's unfair?" It's because they pay for it. The explanation is, well, they pay for it, so you have to, yes, teach them, but mostly keep them happy.

To add to her perceptions about teaching as a graduate student at Regional University, Maria adds that, in line with research to this effect (Brownell & Tanner, 2012; Kahveci et al., 2008) there was definitely a focus in her department on research over teaching:

> I immediately had the feeling—this is from my advisors but, in general—that people didn't care about teaching. So, I did not appreciate that, and it felt like the seminar was set up to tell us that teaching wasn't important. And I didn't agree. I felt like I was unprepared to be a faculty member or an instructor in this system that I didn't know, and at the same time I wanted to do a good job. I thought that this would be helpful, the class.

Maria and TFITA

Maria had received a campus-wide email about the TFITA program and decided to take the class to further her teaching skills. As she remembers it, she liked the concepts of SCL, particularly AL. The SCL concepts made sense to her from an academic point of view and as teaching tools that were different from her own negative experience as a student in Italy. Maria recalls thinking at the time that using AL sounded great, but the realities might be hindered by curriculum and time:

> It would be very difficult to implement the higher you go in technical degrees. I think we also went through a lot of examples for like lower level classes. It felt like it would have been much more difficult if, instead of teaching algebra, I was teaching analysis. That's an impression that I had.

Notwithstanding her reservations about SCL, Maria commented on her perception that there were advantages to implementing SCL strategies in the classroom:

> But the impression was it seems like people are more into it than if they would just have to sit there and listen, which is what I felt as a student. So, we should try to get this done. It felt like, at least to set up the first time, it would be a lot of work. But then, really, it would empower the students to kind of take charge of their learning, which I think it's a good idea. So, it seems like a great idea.

Maria's TFITA microteachings reflected her desire to teach in a different way than she had been taught. She integrated SCL, and particularly AL techniques, into all of her microteaching assignments, receiving high scores from her class peers, visiting undergraduates, and instructors (myself included). In reflecting upon her experience in TFITA, she situates it as

the place where she "learned about modern teaching pedagogy" and where she had "the chance to develop my own techniques and teaching philosophy."

While a doctoral student at Regional University, Maria also co-founded a successful math-based summer program for girls. The entire curriculum for the summer program is based on using AL techniques to engage and excite the students about math. The program has been so successful that at the time of the study it had expanded to include summer program at four universities across the U.S.

Maria's Current Activity System

After receiving her doctorate at Regional University, Maria took a position as a post-doctoral fellow at Ocean University, where I interviewed her and observed her teaching. At the time, Maria was actively applying for faculty positions and had a prepared Teaching Statement, in which she states that one of her main goals is "to move students from being passive observers to active learners." In describing a course that she would develop if given the opportunity, Maria highlighted her belief in SCL and using AL as a tool to motivate her students in class and beyond:

> I will develop my own course focused on Mathematics, Technology, and Society. Students will have the chance to learn about scientists who look like them and be inspired by their work. They will learn about the influence of Mathematics in our everyday lives and what their role can be in building a more equitable society. Pairing these topics with active student participation via project-based learning will help them discover an interest in Mathematics research and give them the confidence to be successful in it.

Based on my experience with Maria in the TFITA course, and knowing her belief in SCL, I was excited to see her in action actually teaching classes.

Observations

I observed Maria teaching two levels of classes, one higher level class and one lower level class, both in mathematics. In both classes the male students far outnumbered female students, with the upper-level class being comprised of 41 males and 9 females, and the lower level class 14 males and 4 females. The upper-level class is in a large auditorium in which Maria stands at the lectern and uses her tablet to work through problems that are projected onto two screens in the front of the class. The lower-level class is in a traditional classroom with individual desks (not attached to the floor), with one screen at the front of the classroom that mirrors Maria's tablet.

In both classes, the male students not only dominate in number, but also in their interactions with Maria, as it is almost exclusively male students who ask or respond to questions during class. This could be as simple as their numbers, but studies show that women are less likely to ask questions in STEM classes (Crombie et al., 2003; Micari & Drane, 2011). Despite content level differences, Maria taught both classes in almost exactly the same way. She would present a theorem, work through an example on her tablet (mirrored on the screen at the front of the classroom), and then follow up by asking the class if anyone had any questions. After working through a series of exercises with the class, Maria would ask the class to attempt one independently. When she thought they were done, she would ask the students if they had any questions, and if not, she then asked for the answers to the problem. If the students did not provide an answer, Maria would ask them to "think about it", but then generally gave only a few seconds of wait time before she answered the question herself. Throughout the classes I observed, there was almost complete silence outside of Maria's lecture. Students were not asking many questions, and there was little interaction between the students.

I also observed Maria during one of her office hours when 3 students (1f/2m) came in with questions regarding both homework and test results. The students started the session with some complaints about how they felt that Maria's grading was much harder as compared to other teachers in the department, but she did not apologize. Instead, she calmly explained her reasoning and moved on working with the students. Maria then spent over an hour with the three students, working with them on the board in the office, engaging in multiple feedback loops to ensure that they understand the content.

While her classroom teaching remained mainly lecture-based, Maria utilized homework as a form of SCL. With her undergraduate background in a setting without any type of formative assessment or interaction with the instructor, Maria's exposure to homework during her doctoral years at Regional University provided her with the experience of homework acting as a useful tool for the students to interact with the material and gauge their understanding. In assigning homework, Maria's goals go beyond having her students practice theorems and problems. As reflected in the research about the importance and effectiveness of having students read and think critically about math (Braun et al., 2017; Butler, 2019; Weinberg et al., 2012), Maria asks the students to read the textbook and periodically asks them to complete problems on a concept before she has taught it to them. The low overall points value of the homework in Maria's class reflect her desire that the students view the homework as a formative assessment tool for them to use in their learning:

> They're graded very generously. Again, my TA grades them, but I told them the grading is going to be between zero and three points for each one of these assignments. Considering there is one assignment every time I cover a new section, which means they

have like 30 of them throughout the semester, and the entire thing is worth 10% of their grade.

Overall, in the classroom settings, Maria's teaching reflects a mainly teacher-centered approach in which the students were passive recipients of Maria's lectures. This was mediated at times with limited question and answer loops and the occasional in-class problem to be solved. Other than this, Maria's use of SCL is mainly exhibited in the homework and readings she assigns, as well as her interactions with students during her office hours. With her reliance on lecture, Maria's in-class pedagogy reveals itself to be traditionally teacher-centered and her appropriation of SCL to be limited to its conceptual underpinnings.

I asked Maria about this disconnect between her stated beliefs (in her Teaching Statement, for example) and what I observed while watching her teach. Her responses expose multiple points of tension in her activity system, as well as ways in which she attempts to mediate the tensions in order to use some of the practical tools of SCL.

In the following section I will use CHAT to examine the areas of tensions and congruencies as perceived by Maria and exposed through interviews and observations. Finally, I will discuss Maria's level of appropriation of SCL techniques.

Maria's Activity System Analysis

Tensions

Tools vs. Rules. In accordance with the themes revealed in the previous chapter, Maria's activity system exposed multiple tensions between the *tools* of SCL and formal and informal *rules* regarding time. For Maria, no longer a graduate student, the time constraints revolve around two issues; the first issue is the curriculum, and the second is the perception that planning for and implementing SCL requires more time than she and the students have for the class.

When asked why she doesn't utilize many SCL techniques during her classes, when she believes in its value in theory and utilized it extensively in the summer program she co-founded, Maria pointed to two issues. The first issue was the curriculum, which she felt powerless to change as a post-doc:

> You know, there's a lot of restrictions when you teach classes. You have to cover so much material in so much amount of time. You have to go at a certain pace because all of the sections of this course have to go at the same pace, or you have ... All kinds of stuff that can get between you and doing exactly what you want to do, when you have no power, like when you're a graduate student or a post-doc. But in general, I thought it was a good idea, and I've always tried to implement at least small things in all of my classes.

The second issue is that she felt that creating a math class utilizing SCL would be a timely venture, a common concern heard from faculty (Brownell & Tanner, 2012), especially when the teaching-research nexus is on research (Fairweather, 2005; Leslie, 2002). This was particularly relevant for a post-doc like Maria who at the time of the study was spending a lot of time looking for jobs:

> If I had a semester when I don't have to teach and my job is to come up with a way to turn everything into something like that, I think it would be great. But I think it would require an amount of preparation and changes that I just don't have the time to do right now.

When I asked Maria for ways this tension between the use of SCL and the *rules* in regards to the curriculum and how it is taught might be mediated, her response involved both time (*rules*) and the *community* of her activity system:

> I think it would be great if there was, say, a project in the math department where they have four facility members working together or whatever to design the actual flipped curriculum or Calc II, and then there's a pilot section or something like that. That would be great. I know they've got grants for faculty who want to try and implement things like flipped classrooms. So, I don't know whether that buys them release time from the class or what it does for them, but there's a lot more supports.

In the absence of supports such as those she mentions, Maria's perception that she doesn't have the time to experiment with SCL techniques in the classroom take precedence over her stated belief in it as a pedagogy. This uncertainty is related to the next set of tensions revealed, the *tool* of SCL vs. the *division of labor*.

Tools vs. Division of Labor. There are multiple instances of tension between the *tools* and the *division of labor* in Maria's activity system. Her desire to utilize homework as an AL tool is met with resistance from the students in her classes. The first tension relates to the content of her homework assignments and the students' pushback, reflecting an issue that underscores differences between Maria's educational experiences and the experiences and expectations of her students. A second tension felt by Maria involves her perception that she is treated differently by her students not because she is a foreign instructor, but because of her gender.

The first tension, involving the content of the homework, occurs when Maria assigns critical reading homework (the *tool*) in her math classes. According to Maria, the students resist, expecting the homework to consist solely of theorems and problems to solve, reflecting the students' own apprenticeships of observation:

> They just refuse to read. Reading is not part of the thing that they associate with a math degree. They think, if you take a philosophy degree, you're going to read so much. But

> the reason why they are in a math degree is because they don't like to read. So, they refuse to read. I want them to read the instructions more than anything, but also just content, context, and examples and things like that. They hate this, and they hate me because I make them do this, but I make them do this, especially in the higher-level classes. In Differential Equations they're already so overwhelmed by everything that's going on that, if I added this, making them read the actual book, they would go insane. I design my homework assignments and my problems so that, if they haven't read the question, they often do it wrong, because I want them to get into the habit of reading the things that are handed to them. But the book, I haven't tried that yet.

Maria's efforts to promote critical thinking by having her math students engage in an in-depth manner with the textbook is supported by research pointing to the importance of having math students engage with the content reading more than typically occurs at the undergraduate level (Butler, 2019; Weinberg et al., 2012). Maria's goal in assigning this reading was two-fold; the first, and at the most basic level, is that she wanted them to get used to reading and following the directions. More importantly, however, and speaking more to her motive and her desired outcome for the students, is the goal that they learn to read math texts to help them think about math and how to use it in practical contexts, and not just learn how to solve problems:

> In my upper level math class, I make them read the book and do something before they show up to class, which I haven't explained to them. So, they either read the book, or they don't know how to do it. And they hate it so much, but I think it's useful, and I think it's a skill that they need to go in the future. No one's going to explain to them how to do something. They're going to have to figure it out on their own. It's just not something we teach them. We teach them "This is the algorithm. This is how you apply it. Go on." And

instead, I want them to think about things, which is like ... I frequently get asked, "Are you saying I have to think about this?" I was like, "Yes, that is what I'm saying."

To further the exercise of having her students learn to read and use the textbook as a tool to think critically about math, Maria would often ask the students to read the text and then complete some problems on their own for homework before she has taught it to them. As Maria explained, the students were not accustomed to needing to figure out math theorems and problems on their own and they complained to her about it. When asked how she responded to the students, she explained:

> I am not expecting you to understand everything in the section, which is why I explained it to you literally on that day. But you need to at least try. This is what I want you to do: read, try. And, if you don't understand, the internet is your friend. Google it. Do something to ... Watch a very I don't, whatever. This isn't a class where they're learning research level stuff where there aren't Khan Academy videos about it. You could go watch a video if you wanted to. I think they got over it after a while, because I haven't heard a complaint about the warmup problems in a while now. But the first month was tough. They did not like it.

When asked about the feedback she has received from her students and her use of SCL, Maria discussed the complaints she has received and how she has worked around this tension:

> This [the homework] is like destabilizing to them, so, yes, these are mostly the complaints. The first few weeks, I got several angry emails about this from all my students. After the nth one, I went to class, and I explained to them that, A, they don't decide anything. I decide, and they execute, or they can go to a different class, which is a choice that they have. I also explained to them that I don't need to justify myself, but I

have done this before, and people survived. So, it cannot possibly be as hard as they think it is.

In another example of the tensions between the *tools* and the *division of labor* in Maria's activity system, and reflecting a theme that was brought up by a number of ITAs in this study, Maria's lack of conviction in SCL made her reluctant to fully appropriate it in her classes because she respects the position of the students as learners and consumers, and is unwilling to "experiment" with pedagogy on their time. In a statement that touches upon her uncertainty about the use of SCL, Maria said:

> Here, there are stakes for them. A lot more than for me, but there are stakes. They want a certain grade because they want to go to business school, and it matters to them. Or they want to go to medical school, and it matters to them. Or they want a job and apparently the GPA counts or something.

A secondary tension between the *tools* and the *division of labor* is revealed when Maria is asked whether she feels that she has ever been treated differently for being either an international teaching assistant or an international post-doc. Instead of feeling that the students treat her differently because she is Italian, Maria felt that she gets different treatment because she is a woman in the field of mathematics, a field largely dominated by men:

> They argue with me on things that I don't think they would argue with if I was a 50-year-old man. I know that. The tone that they have and the things that they say and whatever is just like ... You wouldn't say that to someone who's a 50-year-old man. You just wouldn't. Yeah. Also, they ask me things like to be lenient, to curve grades, to do things that I refuse to do, because they think they can get away with it. Part of is it because I'm not 65, and so they think I'm closer to them in age. So, they think maybe they can get

away with it. But then surely, it's also because I'm a woman, and so they think I should be nicer because of that. But, no, for being international, I have to say I don't think I have ever had particular problems in that way. I do think that, if my accent was worse, if I spoke less English or less fluent English, things would be different.

Tools vs. Subject. Maria's lack of full appropriation of SCL in her teaching also underlines a tension between the *tool* and her as the *subject*, namely her lack of certainty that it can be used efficiently and effectively:

> And also, I don't know if it would work. It would be worth experimenting with it, but also, what if all the students were there, and they are the guinea pigs of what you're trying, and then maybe it's miserable and they don't learn anything? They still have to move onto the next class. I think it would be interesting to try to see if it works…

This quote highlights another key element in Maria's lack of full appropriation of SCL in her classes, and is important as one of her key perceptions as to why she does not implement it more in her in-class pedagogy. As she stated, she was unsure that the practical tools of SCL would work in a classroom setting, despite reams of research to the contrary (Eddy et al., 2015; Freeman et al., 2014), and her own anecdotal experience as a teacher:

> They then get to what it is, and I am asking them to remember all the things we learned in the last month and a half in Calc II, and they don't remember anything. I think if they had learned it differently, it would be easier to them to then use all this stuff into a class they take a semester afterwards, but I don't know. I don't know how ... I don't know how to do that in a way that is effective in actually covering all of the material that I need to cover, because ... Yeah. I mean, I don't know. It would be an interesting experiment. The literature says this kind of pedagogy works, but you've got all these constraints."

Maria's lack of conviction about the effectiveness of in-class SCL pedagogy, despite her negative experience with teacher-centered learning in Italy, her extensive usage of it within the summer camp that she co-founded, and most interestingly, her emphasis on the beneficial use of it in her Teaching Statement, serves as the final tension in her activity system.

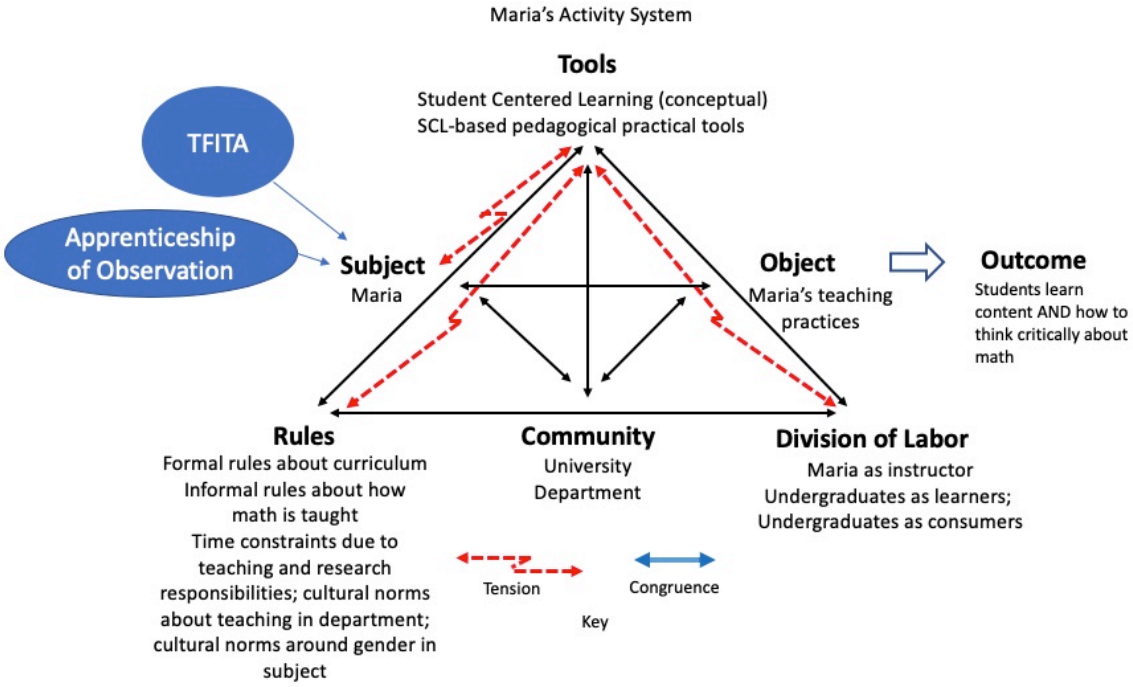
Discussion of Maria and SCL Appropriation

Based on interviews and observations, Maria appears to have appropriated many of the conceptual underpinnings of SLC and related tools; however, due to the tensions she perceives between elements in her Activity System (Figure 8), she is either unable or unwilling to completely appropriate and utilize them as tools in her teaching.

Maria's case is interesting because it seems that she, at least somewhat, believes that in-class tools such as AL could help her students learn and retain the content that she is teaching. Her sociocultural history and influencing factors, such as her experience in the TFITA classes, are congruent with her goal of ensuring that her students are not mechanistic problem solvers, but can think critically about the content and apply it in different contexts. Her own Apprenticeship of Observation and experience as an undergraduate in a teacher-centered environment, particularly one in which the difficulty of classes was used to exclude students and limit the number of graduates in the field, can be seen as both a tension in the Activity System and as a congruence. Through her founding and use of AL techniques in the summer program she co-created and continues to work on, she evidences a partial appropriation of AL.

Figure 8

Maria's Activity System



Maria was not alone among the participants to experience difficulties in appropriating SCL methods. In the following case study, the case of Neel, an ORS ITA from India, will be discussed and analyzed.

Neel's Story "I'm not really a good instructor"

Background

Neel is a single man in his 20s from India, and was one of the few study participants who was not one of my students when I co-taught in the TFITA program as he took the class after my tenure there. Nevertheless, he responded to the recruitment email that was sent to former students, and I was particularly interested in interviewing someone from his department, Operations Research and Statistics (ORS), based on my own experiences with other ORS ITAs during my time at TFITA, as well as research on the teaching methods of ORS ITAs (Christian,

2014). As mentioned in the previous chapter, there were ultimately three study participants from the ORS program, Neel, Arun, and Sam. In addition to being from the same department at Regional University, Neel and Arun had also attended the same prestigious undergraduate institution in India and were friends as well as colleagues. Due to this shared background, Arun is quoted multiple times in Neel's case study. Neither of the other two participants, Maria or Sara, had any shared experience with the other participants in this study, and therefore quotes from other study participants are not included in their stories.

Sociocultural History

Neel grew up and completed his undergraduate and master's degrees in India, a place where, according to Neel, there is usually a very hierarchical relationship between students and teachers, "Back in India, I think there's a kind of a hierarchy between the student and the professor, maybe that's just a cultural thing". The university (referred to as "the Institute") that Neel attended for his undergraduate degree is STEM focused and extremely difficult to get into, comprising only 180 students across all of the undergraduate and graduate programs, with only the top STEM students from across India being admitted each year. Neel also admitted that while his K-12 educational experience in India had been in a very hierarchical system, his experience as a student at the Institute was quite different.

The small size of the student body at the Institute meant that class sizes were kept small, 20 – 30 in undergraduate classes and even smaller for graduate classes. Arun, another participant from the ORS department in this study, and also a graduate of the Institute, described the classroom pedagogy there as very similar to what he experienced when he got to Regional University:

> So, the teacher will come in, tell you something, and then write examples on the board, and then they'll give you some problems to do on your own. It was very similar to here, I think. A lot more detailed. They tried to give intuition from real life, and you do problem solving in class, ask questions.

Neel, too, did not feel that either the instruction that he received or his interactions with his professors while taking classes at Regional University was much different than what he had experienced at the Institute, "Our professors [at the institute] were more approachable, and then we would ask them questions, and they would answer and so on. So, coming here, I would say, it wasn't very different for me."

Neel identified three things that he felt were surprising to him when he arrived at Regional University. The first two, the thoroughness of the syllabi and the fact that professors and TAs kept office hours, were more of interest to him but did not affect him in a significant manner. The third thing Neel was most surprised at, and similar to the experience of Maria when she arrived at Regional University, was the content and amount of homework he was assigned as a graduate student:

> Here, the course, the homework and so on, the weekly assignments are much more intensive than what I was used to. It was as if your whole preparation would happen in these, in these weekly assignments that you would do. I was used to more like a final term assessment or maybe an assessment somewhere in the middle with a few quizzes here and there, a few assignments here and there, and then a major final exam.

Despite its novelty, and again echoing comments made by Maria, Neel came to understand the purpose of the homework and appreciate its use, "It helps you... helps the students constantly go over each of the material that's covered in every class."

Neel and TFITA

The ORS department at Regional University is the only department at the school that requires its ITAs participate in TFITA. According to Neel, most ORS ITAs, especially those from India with stronger skills in English, try to get out of taking the TFITA course, mistakenly believing that it is a language improvement course and not realizing that there is a strong pedagogical element to it. Neel, however, felt a responsibility to be a "good teacher", was apprehensive about teaching since he had not taught previously, and thought enrolling in the TFITA program might be beneficial:

> Before taking the course, I didn't really know what that course was about, except that it was a course to help you teach better. That is my understanding. I guess that's the main reason why I took the course, because I thought that I had been... I guess if I ever want to teach, I want to be a good teacher. And so, I said, "Hey, if this course helps me become a better teacher, then sure."

Based on my experience with ORS ITAs, Neel's attitude going into taking the TFITA course was already different than the most of the others that I had taught, who often did little to hide the fact that they were only in the class because they were required to do so. Research by a former staffer in the TFITA program revealed that even after taking the TFITA course, the majority of the ORS ITAs taught their undergraduate classes using the traditional, lecture based pedagogy that is prevalent in the department, even using the same PowerPoint slide deck that was created a number of years ago by a faculty member (Christian, 2014).

Neel's practice forays into teaching during the microteaching assignments during TFITA were consistent with his apprehension about teaching. As I reviewed the video of his

microteaching assignments, his nervousness was evident at first, but seemed to ease through time in the program, at least in the setting of the TFITA course and perhaps as his confidence grew.

Much of the content of TFITA was new for Neel, such as the concepts of SCL and AL. His experiences as a student, both in India and as an ORS student at Regional University did not expose him to either SCL or AL. Instead, while in the TFITA course, he recalled an extracurricular experience that made the concept of AL, in particular, resonate with him:

> Active learning was not something that I had seen as a student, but maybe there were a few instances where I might have experienced a new form of active learning. Not necessarily in my academic classes that taught students. Okay, for instance, I remember one of the instances where I was in France for a summer, and I did not know any friends. So, I had gone there to take French lessons. Those French lessons were in French, and they were... so, they were in French, and also, they were very practical. It was more like a conversation rather than a lecture. It was fun. The first point was, I was sitting in the class, the class was fun. I would look forward to the class rather than, yeah... rather than maybe a more... it didn't feel like I was actually studying for something, rather it just felt that I was in a fun environment to learn things.

The recognition that it was “a nice thing to actually engage the students so that they learn”, made Neel eager to learn more about the use of SCL and AL in statistics education and keen to use it in his teaching:

> Traditionally a lecturer can keep on rambling about all that he has to say, but he or she doesn't know if the student has understood the material in any way or not. So yeah, that is definitely one of my takeaways from the TFITA class, that this kind of a lecturer is something I should avoid.

Overall, Neel was very positive about his participation in TFITA and says that he would "recommend that anyone take it".

Neel's Current Activity System

I first interviewed Neel prior to observing him teach and asked him some basic questions about the class he was teaching at the time, Stats 101. It was his first teaching experience, and I asked him how he felt it was going, to which he candidly responded:

> I would say that I'm not really a good instructor. I mean I'm not really an ideal professor that student would want, or maybe student might need. Why do I say that? Well, I say that because I still don't have a grasp of the material very well. I still don't know how to give interesting examples that students can relate to. Apart from that, yeah, I might not be explaining concepts in…sometimes, some things that I explained to the students, I might end up confusing them instead. I am sure these will change I as I get more experienced teaching. Right now, I might not be the best instructor they can have.

I asked Neel about his preparation for teaching the course. Stats 101 is an introductory course that is required by many departments outside of the ORS department, and fulfills general education requirements as well. This leads to the Stats 101 classes being filled with a wide variety of students with a similarly wide variety of basic math knowledge and comfort. It is generally acknowledged to be a more difficult class to teach than higher level Stats courses where the students have a more uniform math base and are generally motivated to get a top grade because they are trying to get into graduate school (Christian, 2014). Neel discussed the option that ORS TAs have to use pre-made course materials and a PowerPoint slide deck that has been used in the department for many years:

> So, there's a common set of course materials that have been built up over previous years by many other students and instructors. We have access to all of that. Basically, we can use that to build a syllabus to design our course. It also has, it has lecture slides. What many students often... that's the easiest thing for students to do is to actually just use those same lecture slides again. I mean that's the least amount of work for the graduate instructors.

As an instructor in the TFITA program, I was aware of the existence and use of the pre-made materials and the PowerPoint slide deck. Overworked ORS ITAs, some worried about their language abilities, and others just unsure about their own teaching practice like Neel was, often admitted to us that they would probably use the existing materials even after participating in the TFITA program. Research has shown that as a pedagogical *tool*, these types of pre-made course material were relied on by ITAs in the department and were often used in an ineffective manner (Christian, 2014). When I asked Neel if he'd ever seen anyone in the department implement any kind of SCL or AL in their teaching, he responded in the negative, adding, "I've heard that one of our new professors does it. I haven't interacted with them though," indicating not only the rarity of it, but also the lack of anyone he could use as a model in his attempts to use SCL-based pedagogies.

I was surprised, then, when Neel, also identifying one of the major themes that was identified by all the ITAs in this study, namely the lack of time to prepare for teaching, went on to discuss why he ultimately decided not to use the existing PowerPoint slides, and instead utilized those of Arun, one of the other ORS ITAs in this study:

> What I do is I don't have a lot of time to spend on preparing for the classes anymore, so I use the lecture slides, or rather I use a set of lecture slides from one of my peers; he

> taught the same course last year. He had also taken the TFITA course with me. I like his lecture slides. I've been using his lecture slides. So those have been, I think, I find those a better fit to the way I teach. The lecture slides that we found in the common repository, I think they go pretty fast. I don't think students would understand any of [it]. It's too fast a pace for students to catch up, or maybe they do. I don't know. Arun's lecture slides that I'm using right now, those are slow-paced. Sometimes he has a good example to give, or maybe even he has picked up most of his examples from, from the common repository. Anyway, so what I've settled on is using these lecture slides and trying to use PollEverywhere to get students to do some problems in class and see their response. This, and the other teaching aspect is to actually give them quizzes and then go over those quizzes with them. And certainly, give them assignments. But assignments are actually graded online using a certain web-based tool called WebAssign. And I don't think it's so effective. So that's why handwritten quizzes and then going over them with the students, then also giving them practice exams going over that for them, is what I've settled on basically.

Despite his stated lack of confidence in his own teaching ability, this quote reflects a desire on Neel's part to make the class student-centered and to attempt to utilize some in-class AL methods. Additionally, and similar to Maria's experience, Neel considered homework assignments and in-class assignments as a method to engage the students with the content. When asked to describe one of his typical classes to me, he answered that out of a 50-minute class, he thought he lectured for 30–40 minutes, concluding the classes with having the students do a math exercise:

> So, basically, I usually do one exercise, so I'm not counting that as that as a lecture. So, where students have to maybe solve something by themselves. In my mind, that problem is there to enforce what students have learned during the lecture.

Based on his self-description as a teacher ("I'm not really a good instructor"), his stated teaching methods (lecturing for most of the time), and my own previous experience with ORS ITAs, I was curious to observe Neel in action teaching Stats 101.

Observations

On the two days I observed Neel's classes, there were 26 and 28 students in the classes respectively; 11 male students and 15 female students on one day and 13 male and 15 female on the other. Neel's pattern of teaching was consistent during my two observations. He entered the class each day and immediately started with dividing the whiteboard into four roughly equal sized sections and starts by writing an equation on the board. While he did this, students filed in and settled into the desks, which are bolted to the floor and set in five long rows back from the front of the classroom. Neel soon started reviewing the statistics problem on the board. As he did this he stopped frequently, turned to the class, and asked that students help him complete the next step, in a back and forth, question and answer loop, with students calling out the answers (not needing to raise their hands). Students of both genders, in roughly equal number, participated in this and seemed comfortable doing so. When a student got an answer wrong, Neel made repeated attempts to guide them to the correct answer without giving the answer directly. At one point during the observations, another student stepped in to provide the answer for the student having trouble. At another time during the second observation, when it seemed that no one was providing the correct answer, Neel stopped and told the class that he was going to explain the problem a different way, because what he was doing wasn't working.

As they worked through the statistics problems together, Neel quickly, but neatly wrote it all on the board, starting with the quarter of the board on the far left. As he filled in the first section of the board, he moved on to the next quarter of the board, always moving in a top to bottom in a pattern that is clear and easy to follow. Most of the students observed were taking notes. On the second day I observed the class, Neel used up all four quarters of the board, but still had more to write. He quickly moved to the quarter of the board at the far left which he had started on, erased the content, and completed the lesson.

Roughly halfway through the 50-minute class during both observation days, Neel wrapped up the board work, brought a screen down in front of the whiteboard, and pulled up a PowerPoint slide. On the first day I observed, the slide consisted of a statistics problem involving the average ages of MBA students at Regional University and those of MBA students at its largest rival school. During the second observation, the slide involved sports teams averages at the two schools. Neel used the slides as jumping off points for the students to work out the problems presented. Neel told the students that they could either complete the problems with partners, groups, or on their own, but they were to provide their answer on a phone app called PollEverywhere. A few student clusters worked together, while other students worked independently while Neel walked around the class answering questions. After a few minutes, Neel brought up PollEverywhere in the screen at the front of the classroom and discussed the answers with the class, again using the whiteboard to work out the problem.

Overall, Neel had appropriated many of the conceptual underpinnings of SCL, often without recognizing them as so, something seen in many novice teachers (Grossman et al., 1999). His pedagogy was more student-centered, and utilized more AL tools, than I was prepared to see based on his responses to my interview questions prior to observing him teach. He used

SCL frequently during question and answer loops that involved many of the students in the class. While a more in-depth study would need to be done to examine exactly why this might be, it was evident that the students of both genders felt comfortable in this in-class participation, important because research has found that women in STEM classes often do not participate at the level of their male counterparts (Eddy & Brownell, 2016). Additionally, it was evident that Neel was focused on ensuring student understanding of the content, beginning with his use of Arun's PowerPoint slides, based on Neel's determination that the department provided slides moved too quickly, through his organized board content, and continuing through his use of in-class problems and PollEverywhere. Reflecting after the observations, Neel was able to articulate that his goals had actually evolved while teaching:

> Yeah, I started with the enthusiasm of wanting to make sure my students understand the content. Now, I think that's changed, that object has perhaps changed a little. I think now, rather than wanting them to... I mean, certainly I do want them to understand the content, but I think the first step before that is to make sure that they don't get scared away from the content.

In the following section I will first define the components of this particular activity setting. I will then use CHAT to examine the areas of tensions and congruences as perceived by Neel and exposed through interviews and observations, and finally I will discuss Neel's level of appropriation of SCL techniques.

Neel's Activity System Analysis

Tensions

Tools vs. Rules. As perceived by Neel, the biggest obstacle in the use of SCL in his teaching practice had to do with the formal and informal *rules* around his time as a graduate

student. As a graduate student he found it very difficult to balance the responsibilities of completing his research with his teaching responsibilities. When I asked him about what influenced his teaching decisions at the beginning of the semester, his response about this subject made the tension clear:

> What is influencing my time? Mainly my research. I have like two projects going on, and one of my advisors is – so I have like three advisors – one of my advisors is expecting me to finish up a paper, so he's pressing on it every week. That takes up most of my time. Then I'm doing my dissertation proposal next week actually. So, writing that up and creating presentations. That's another thing that I have to do by... on my time. And then there's teaching. These are the three time-bound responsibilities I have. While doing all this, it seems that... It seems that if I can't spend... I'm trying to spend as little as possible, like bare minimum, on teaching to like... yeah. So that's my strategy: spend as little on teaching as possible so that I get time to do other things.

The time pressure Neel felt as a graduate student was not the only obstacle he felt involving time. When asked exactly how the pressures regarding his time affected the pedagogy of the class, his response reflects a theme brought up by all of the participants in this study, namely the additional time that they perceive it would take to implement AL methods in their classroom:

> One of the things is, actually implementing these techniques takes a lot of time. It takes a lot of time, and it also, somehow you need to build those techniques up by trial and error or multiple iterations.

The dual tensions that Neel felt regarding time, namely that SCL would take a lot of time to plan for and implement, and time was something that Neel was in short supply of, certainly served to

influence his decision regarding the use of SCL. As mentioned previously, however, the availability of Arun's slide-deck mediated some of these tensions for Neel and made it possible for him to use a limited amount of SCL in his teaching practices.

Tools vs. Division of Labor. Another tension in this activity system occurred between Neel in his role as the instructor and the undergraduates as the students. Neel felt that while his initial goal for the class was for the students to understand the content, he had come to understand that in addition to just understanding the content, what he really wanted was for the students to not hate, or be afraid of, statistics after this entry level course. He complained, however, that he felt that the students themselves had different motives and expectations for their class outcomes. He felt that some just wanted to "make it through" the class, while others were focused more on their grades,

> I mean, one of the things that I did not expect before was how some of the students would actually be very focused on the final grade, rather than more about the learning. And, so, I guess, all time I've accepted that, and then next time, I'll be more careful when interacting with these students. And also, about how they could optimize their grade. So, they are interested in doing the minimum. They are trying to somehow game the class, and game the system.

In another tension between the elements of the *tools* and *division of labor*, Neel felt unsure and lacked confidence in his ability as an instructor. This, along with his ultimate uncertainty about the efficacy and efficiency of using AL tools discussed below, provide an additional point of tension.

Tools vs. Subject. In addition to the time, and echoing Maria's sentiments, Neel ultimately felt unsure about the efficacy of SCL *tools*, even though he acknowledged that research had found that SCL, and particularly, AL, was an effective way to teach statistics:

> It's not a concrete rule book that you follow these steps and this would end up with a good teaching experience or learning experience for the students. It takes a lot of time to maybe come up with the correct implementation. I was not sure in my ability to actually implement it though. Maybe I was scared. That's one possibility. Other than that, the papers spoke about a lot of trying to use a lot of different things, saying, "Hey, you could do this. Hey, you could do that once you've worked with this material." I think I did not really understand the purpose of that experiment. It was to engage the students, but I felt if... I was wondering if that time spent was actually being well spent or was it just... would that time spent just like take up class time. Yeah. I would be fine doing that exercise if I felt that it was going to be well spent.

Neel's use of Arun's PowerPoint slide deck partially served to mediate this additional tension in the system between the *tools* and the *subject*. Neel said he was concerned that he, as an ITA, didn't understand or share many cultural connections with the students, impacting his ability to either introduce or reinforce the content through relevant, real-life examples. He expressed that the cultural disconnect that he feels as an ITA impacts his ability to use AL *tools* in the classroom:

> I mean it's hard. I understand it's hard for them to maybe think about the material and spend their mental energy doing that. So that's why as an instructor it's actually important to be able to give these exciting examples that actually engage them and make them want to learn more. But I don't think I can do that very successfully. I tried to relate to the

> students at their level. But I don't think I'm successfully able to relate to the students yet, at that level, to see what is it that they find interesting or what is it that can engage them. I try to do my best, but that's still not enough, I think.

Congruences

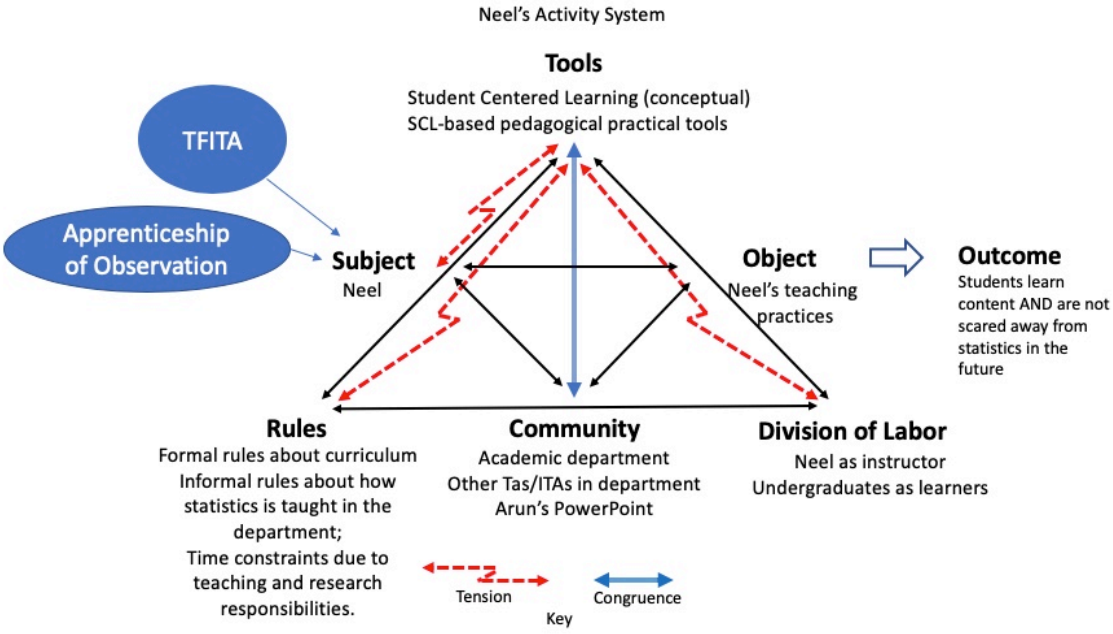
Tools and Community. An example of a congruency between the *community* mediating a related tension in Neel's use of SCL is Neel's decision to use Arun's PowerPoint slide deck in teaching the Stats 101 course. Just like Neel, Arun had been exposed to the formal concepts of SCL and AL through his participation in the TFITA program, and had then spent a great time of time modifying the PowerPoint slide deck provided by the ORS department. Since they were in the same department, Arun offered the materials to Neel to use, making it possible for Neel to take advantage of Arun's pacing and real-life examples. Despite Neel's determination at the beginning of the semester to "spend as little on teaching as possible", he was able to appropriate some SCL techniques through his use of Arun's slide deck and some of the in-class techniques he had learned in TFITA, such as the use of question and answer loops. One could conjecture that had he not had access to Arun's slides, he might have used the standard ORS PowerPoint slide deck that most of the ORS TAs use.

Discussion of Neel and SCL Appropriation

Ultimately, although there were many tensions in Neel's Activity System (Figure 9) working against it, Neel was able to appropriate many of the conceptual underpinnings of SCL in his teaching. Neel's experience in the TFITA program, where he was exposed to the concept of SCL and AL, along with his use of Arun's materials, and finally, Neel's own goals for the students were enough to mediate the many of the tensions of time, ability, and culture that might otherwise have led him to utilize a more teacher-centered pedagogy.

Figure 9

Neel's Activity System



Neel's response to being asked whether he plans on using or increasing his use of SCL or AL in his future teaching reflects a growing interest in the applicability of SCL and AL, along with what he views as some limitations:

> I definitely want to do more of this in-class group discussion kind of thing. I give students problems to solve and they work in groups to solve them. However, I'm not sure if I can. So, for instance, in this particular classroom where my class was at, the chairs and tables are all fixed, and so that doesn't make for a very good group interaction in the classroom. So that is one point, but even then, if we had these flexible tables and so on. The other point is how do you actually engage the students? Or how do you make sure that most of the students are actually working on those problems and not? How do you make sure that they do it? That's the second question that comes to my mind.

Neel's partial appropriation of SCL, despite the multiple elements that provided obstacles to its use, is an informative example of the uniqueness of each participants' activity settings. Next, the case of Sara, will provide an interesting counterpoint to the experiences of most of the participants in this study.

Sara's Story: "We're going to get through this together."

Background

Sara is a married doctoral student from Japan studying in the humanities. Like Maria, I met Sara when I co-taught the TFITA course. Compared to some other students in the class that semester, she seemed to be eager to engage with SCL and AL. Despite her interest, she initially struggled in her first microteaching utilizing AL, scoring high in the presentation category, but overall low in the teaching category. She gained more confidence in her second and third microteaching assignments, but consistently scored lowest on the teaching portion of the rubric.

Sociocultural History

As a child, Sara and her family lived in the northeast United States for a year and she attended an American school. Later, she came to the U.S. on two separate occasions to take intensive English courses, once when she was 17 and again when she was 22. After completing two undergraduate degrees and a master's degree in Japan, she decided to complete her doctoral degree at Regional University.

Sara describes her pre-university education experiences in Japan as very teacher centered and lecture based, with little deviation made for individual students:

> Everyone is trained in the same way. Everyone is taught in the same way. Everyone must reach this certain score. Like, there is this yard stick they get measured on. So, no special

treatment. Regardless of the situations they are in; so, it is a standardized education and cramming.

Although the language of instruction throughout her university years in Japan was English, Sara characterized the pedagogy in the department of her first undergraduate degree as "traditionally Japanese" in regards to the hierarchical relationship between faculty and students, as well as the reliance on lectures. Although at the same institution, she portrayed the department in which she received her second undergraduate degree and master's degree as being much closer pedagogically to an American university than other universities in Japan in regards to what she viewed as "student-centeredness". In particular, she pointed to the teaching practices of the advisor she had for her second undergraduate degree as one of the main influences in her own pedagogical practice:

> In my second undergrad I had a different advisor, and apparently my undergrad advisor and my other advisor were good friends, but that class that I took with my advisor in my second undergrad, he got his degree from UC Santa Barbara, so he was educated in the US, so he'd teach it in a very American way. He does lecture, but he also asks a lot of questions and then he asks us to think, right? And sometimes he provides questions but doesn't provide answers. And we think, "But wait, wait, what is it?" Encouraging us instead to think. That was rare in Japan.

In 2011 Sara came to Regional University to pursue her doctorate. She participated in a teaching class in her department that she deemed to be too focused on the mechanistic side of teaching:

> It was a comprehensive pedagogical class. All aspects of teaching a class that includes grading, creating a syllabus…Basically I'm saying that our department, our pedagogy

> kind of sucked, but the teacher who taught the pedagogy class in our department has gone, and the new instructor, I think she teaches about teaching much better than the last one. I expressed to my advisor that I didn't feel like I got anything out of the pedagogy course that I took in our department.

Sara and TFITA

After completing the class, Sara found herself "dying for any sort of pedagogical class" and enrolled in the TFITA program. In this class, she realized that her "preconception of standardized learning doesn't work," and was able to practice ways to engage her students in active study. Additionally, she found the class assignment to observe a peer in her department very useful when considering how she would like to teach: "He was very conversational and I liked that a lot, that style. I tried to implement it a lot, which made my teaching easier."

Since taking the TFITA course and the time I interviewed and observed her, Sara had taught at least four classes in her department. According to her, she has tried to utilize SCL, and particularly AL in each class, with varying levels of success. She stated that she struggles with using the techniques with lower level courses due to the students' general lack of knowledge of the subject:

> It was hard to use in the 100-level class, but it was much easier in the 400-level class. But, in that 100-level class, because it was 100-level, the students felt less comfortable about speaking up and asking questions about different concepts. Because I have to explain everything to the 100-level, I can't rely on their previous knowledge, because they don't have one. So, the questions that I ask are more basic and slower, move forward slower. The 400-level student usually understand basic terms and that becomes a spring

board for a more in-depth conversation. Where, at the 100-level experience, it becomes more basic and slower.

Sara's Current Activity System

I interviewed and observed Sara in the fall semester while she was teaching a 300-level course in her department. At the time of our first interview she was trying to complete her dissertation in time to finish the following spring and return to Japan to start an adjunct faculty position. She expressed her frustration that she had not been able to secure a more permanent position there, stating that she believes this is partially due to the fact that she has very little teaching experience in Japan. Her American husband, however, was already living and working there. Sara was eager to join him and therefore had planned to move back to Japan soon after our final interviews her for this study, regardless of her work situation, with the intention of completing her dissertation while there.

The class I observed Sara teaching was relatively small, with between 16 and 18 students present each day I was there. The majority of the class was female with a small cohort of male students. As a whole, the ethnicity of the students in the class was diverse and in general reflected the makeup of the Regional University as a whole. According to Sara, she had little knowledge of the class content prior to teaching the course, "I know the literature, enough to join the discussion; but I am not equipped to teach it," and had to figure out ways to incorporate it with her own research expertise,

Yeah. This is not my research. I write about Japan, but I don't write about cultural diversity. I don't even talk about multiculturalism or anything like that. I don't do that. So, it's like why am I assigned to this stuff? It's because I am a Japanese woman, right?

She recounted that she had started the class off early getting used to working together in small groups. Additionally, from the beginning of the semester she assigned them pre-class readings and had the students submit questions about the readings prior to each class session, which Sara subsequently used during class.

Observations

In observing the class mid-semester, it was evident that the students were accustomed to their role as active learners in the class. As the instructor, Sara embodied the concept of "guide-on-the-side" in her ability to focus the students on the subject, have them work collectively in small groups in analysis of either articles the students had been assigned outside of class or in short excerpts presented in class. Each class began with Sara welcoming every student by name and making small talk about the unusual weather the day before, "I want to ask how your Halloween tornado went. Crazy, right?" while students filtered into the classroom. For each of my observations, Sara followed the same pattern at the beginning of the class. As soon as the students had settled in Sara began the class by turning on a PowerPoint presentation with a slide that had an interesting picture (associated with the reading), the name and author of the reading, and some thought-provoking questions about the reading.

During my first observation, it became clear that the questions (as homework) had been written by the students and sent to Sara as homework. Sara proceeded to give a quick introduction to the day's subject, then asked the student to move into their groups to discuss the readings and the questions with a quick "ok, go!" Taking advantage of the rolling desks in the classroom, the students formed groups and started discussing the readings in such a quick fashion that it was obvious that this was something they were used to and did frequently. As the student groups were working, Sara moved about the classroom interacting with groups, asking

questions and murmuring affirmatively. After a few minutes (no more than five), Sara moved to the front of the classroom and asked for the students' attention by saying "okay, let's talk about this." Discussions wrapped up and desks swiveled toward the front of the classroom. As she moved from group to group, Sara asked for summaries and student comments. Often the person in the group who gave the summary was not the person to provide additional comments. After each group, Sara made a point to restate, and then clarify or challenge the group's point, before moving on to the next group. Her use of open-ended questioning engaged the students and allowed for students to analyze and synthesize what they were learning on the subject. Notable in my observations was the ease with which the students discussed racially charged subjects in this diverse classroom.

In the following section, I will first define the components of this particular activity setting. I will then use CHAT to examine the areas of tensions and congruences as perceived by Sara and exposed through interviews and observations, and finally I will discuss Sara's level of appropriation of SCL techniques.

Sara's Activity System Analysis

Tensions

Tools vs. Division of Labor. When asked what her biggest challenge was in teaching this class, Sara pointed to the tension that she feels between her fulfilling her role as instructor in engaging her students, and the academic level of the students:

> To get to their level. The biggest challenge in my teaching, I already have certain lines of thoughts that connect the interactive lecture. They engage and sometimes the anchor is super off. I need to go there and be like, "what do you mean by that?" But that is always super hard."

Additionally, Sara acknowledged that she felt challenged as the instructor in this class because she was not especially familiar with the content and needed to find a way to incorporate her own expertise into the course. Sara mediated this tension, and opened up space for AL, when she decided, from the beginning of the class, to admit to her students her lack of authority on the subject, setting the stage for her role as the guide-on-the-side:

> I feel like for this class I started out as kind of at the same place as they were [my students) – "I don't know what this is. I'm here, we're going to get through this together." So, I think from the get go, my teaching is generally very collaborative. I am evaluating you, but by the goals that I set up that you promise to keep. You keep these like a promise. You promise yourself that you're going to do all these assignments by these deadlines. If you need extensions, I'm happy to grant them as long as it's not ridiculous. And I, for the class, I'm more like kind of a motivator or a coach and I am evaluating, but at the same time I'm more like keeping them on track. So, I was kind of like together with them.

While both of these issues, the need to find ways to work with the in-class student interaction and her lack of knowledge about the subject, were both tensions for Sara, she found ways to resolve these tensions while not feeling the need to abandon either SCL or AL strategies. On the contrary, she did not hide her lack of authority on the subject but instead used it to create a collaborative learning environment.

Tools vs. Rules. According to Sara, one of her greatest tensions this semester was the amount of time it took her to prepare to teach her class and the pressure she was under to complete her dissertation. She discussed the feeling that she had been given this class to teach because of her gender and ethnicity, despite the fact that she felt that she did not have enough

expertise on the subject to teach it and, indeed, had ranked it last on her teaching assignments list. Due to this lack of knowledge about the subject, she found that she needed to spend a great amount of time preparing to teach the class, ultimately to her personal detriment:

> But I felt that for teaching this class I actually had to read quite a few new articles and I had to prepare some, you know, teaching lessons that I had never taught before. So that definitely took time away from my writing.

During her second interview at the end of the semester, Sara revealed that her dissertation would not be done on time to graduate in the spring. Sara admitted that teaching the class had indeed taken more time this semester than she had anticipated, and she had not prioritized her own research and writing as much as she should have.

Tools vs. Subject. With her background in an educational system in which "all students were treated the same," Sara reported that she initially had a difficult time with certain elements of maintaining a student-centered classroom, such as meeting the student "where they are" and the focus on treating each student as an individual with individual needs:

> Thinking about what is fair and accommodating is a challenge. I think I am managing it fairly well, but it is a challenge. So, I don't really like the terms, used in class. But what I brought home, definitely, is the students learn in a different way. Every student is different and their own circumstances. So, my preconception of standardized learning doesn't work. So, and I think the different types of learners, the visual learners the narratives, the different techniques. I am doing more in the class that I am teaching right now because I am combining lecture and discussion. I did it in the last pop culture class to have different ways to engage active study.

Congruences

Tools and Subject. Sara's ability to move past her background in a very hierarchical educational setting and use SCL pedagogy is mediated by a number of her sociocultural influences, such as her exposure, via an American-trained professor, to AL in the second of her two undergraduate degrees and her master's degree in Japan, her formal introduction to SCL through her participation in the TFITA program, and the cultural context provided by her marriage to an American.

One of the general themes elicited from the participants in this study was that as ITAs they felt that they had a disadvantage in using certain SCL techniques, such as AL, in their teaching because as a *tool* it often required a level of cultural understanding that the ITAs felt they lacked. Sara was one of the few participants that did not feel that she experienced a cultural disconnect with her students, and this could be due to the fact that she is married to an American. While being partnered with someone from a different culture does not grant an immediate and deep understanding of the partner's culture, it can possibly be a strong mediating factor. When specifically asked about how this might have affected her use of AL, particularly in regards to creating rapport with the students, Sara answered:

> Oh, a lot. I use anecdotes about my husband and his family as a "connecting" point with the students and also as a starting point to share my perspective as an "outsider" who has an insider knowledge. Although I was married before I applied to PhD program, I feel a lot of my perspective on American culture is shaped by his (and his siblings and parents) perspectives.

Sara's interactions with her American spouse allowed her to practice her cultural understandings in a safe environment, important not only in her language acquisition, but in her ability to interact in a humorous fashion with her students.

Tools and Community. According to Sara, while her department in the past had been largely lecture-based, over her years at Regional University there had been a movement to adopt more SCL pedagogy. As Sara recalled, the opportunity to see SCL being used in her department was a major influence in her desire and ability to appropriate it in her own teaching:

> There is one faculty in particular (it was her first-year teaching at Regional University) that I took cues on strategies I can use for active learning (conversational style lecture, group activities, writing activities, think-pair-share, etc.). I also had opportunities to see other graduate students teach (part of a TFITA assignment) which also helped me think about my own strategies. No one in particular told me that this is good, but I enjoyed the faculty's teaching style and I saw students liven up with her lecture, so I thought I wanted to do the same.

This congruence helped Sara as she was able to observe peers and faculty use SCL methods in classes similar to those that she would be teaching. So, not only did she see examples of how SCL methodology could be implemented, but she also did not need to fear negative departmental ramifications from its use.

Tools and Rules. In an example of a tension between elements (the assignment and subsequent small group discussion of readings versus students' available time) becoming a congruence, the *tool* of AL itself became the mediating factor in Sara's homework assignments:

> I definitely assigned too much readings, too many readings, so I couldn't spend time as much as I wanted to in some of them. But at the same time, some readings, their

> understanding was really quick. And because I have their small groups interactions, sometimes there are students who didn't get it, the other students will explain it for them and they did it without me directing it.

In this instance, using AL in small group settings allowed Sara's students to access the material in ways they might not have had, if they had only been reading and trying to interpret the content individually.

Discussion of Sara and Level of Appropriation

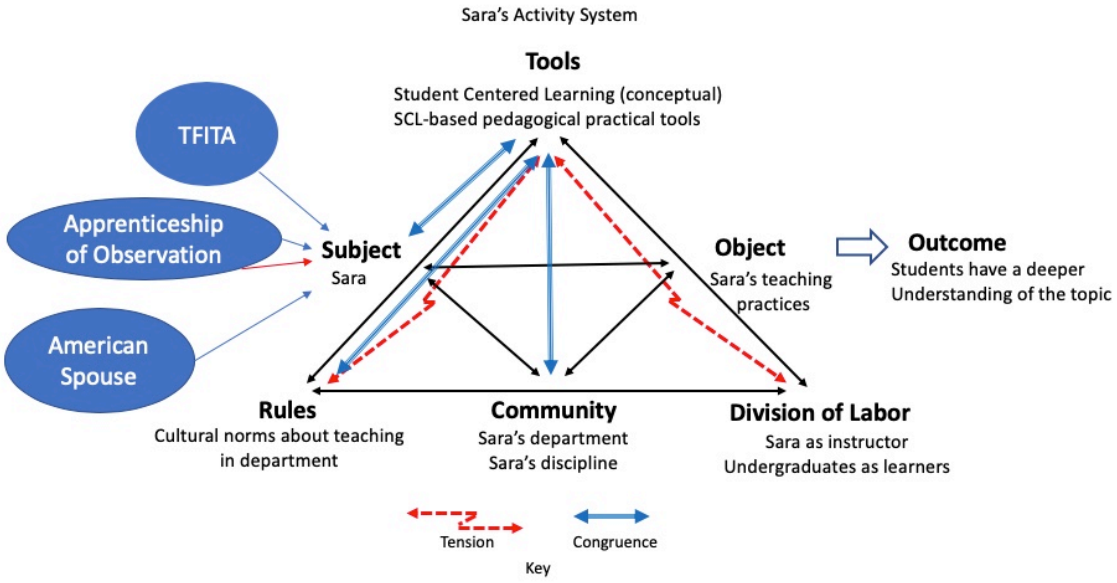
With its focus on the appropriation of SCL pedagogy, Sara's Activity System (Figure 10) provides an opportunity to view a system in which the congruencies served to mediate the use of SCL and outweigh the tensions in the system for Sara. Because of these factors she was able to master the appropriation of the *tool* of SCL. This does not mean that tensions were not present, and they remain important points for growth in the system; however, the mediating factors present in Sara's system allowed her to have the ability to appropriate the pedagogy and practices of SCL in her class. While Sara's apprenticeship of observation in a teacher-centered, hierarchical educational setting from her early school years through her first undergraduate degree offered a potential tension, her subsequent exposure to a SCL pedagogy in her second undergraduate degree and master's degree, along with her exposure to SCL in TFITA, seem to have been a mediating factors in her choice of pedagogy.

Finally, the fact that Sara's department seems to be moving away from lecture-based, teacher-centered learning is important in two ways. The first is that she was able to see what SCL and AL look like in practice and use it to model her own teaching practice, the importance of which is well supported in the literature on the teaching practices of novice instructors (Ashavskaya, 2015; Austin, 2002; Chiang, 2016; Dancy & Henderson, 2007; DeChenne et al.,

2015; Fagen et al., 2002; Grossman et al., 1999; Kurdziel et al., 2003). Second, because there are faculty in her department that use these techniques in their classes, Sara could have a reasonable expectation that they would approve of her use of the same methods.

Figure 10

Sara's Activity System



In the following section, I will discuss Maria's, Neel's and Sara's cases and present a cross-case analysis to examine how their individual activity systems inform the general themes discussed in Chapter 4.

Cross-Case Analysis

The following is a summary and cross-case analysis of the case studies of Maria, Neel, and Sara. The examination and analysis of these three cases enables us to better understand the factors that the participants perceived as having influenced their teaching decisions, specifically in regards to SCL concepts and tools. Maria, Neel, and Sara's cases will be presented in terms of the tensions and one congruence identified through an analysis of all eight participants in this

study (presented in Chapter 4). Table 7 provides a visual representation of the cross-case analysis of Maria, Neel, and Sara discussed in further detail below.

Table 7

Elements of Maria, Neel, and Sara's Activity Systems

	Maria	Neel	Sara
Sociocultural Factors			
• Home Country	Italy	India	Japan
• Field of study	Mathematics	Statistics	Social Sciences
• Educational background in hierarchical, teacher-centered setting	Through Master's degree	Through Bachelor's degree	Through first Bachelor's degree; second bachelor's degree and master's degree in Japan in a SCL based setting
Activity System Tensions			
Outcome (goals) of the Activity System Process	SCL based: to have students be able to think critically about math	SCL based: to ensure students are not afraid of statistics and see its applicability to their future careers	SCL based: to have students think critically about gender and race
• *Tools* vs. *Rules* o Time & curricular constraints o Cultural norms regarding teaching in department/field	Not enough time to prepare and implement SCL; "powerless" to modify curriculum; didn't see it used in department	Pressure to do research limits time to prepare to teach; didn't see SCL being used in department *Congruency*: mediated this tension through use of peer's SCL based slide deck (*tools* and *community)*	*Congruency:* Feels that preparing for a class utilizing SCL takes *less* time than preparing a 50-minute lecture; sees SCL being used in department; class content more theoretical than needing to cover canon of information
• *Tools* vs. *Division of Labor* o Push back from students involving Academic Entitlement (AE)	Students do not like SCL type *tools* and due to AE feel free to pushback against its use; impact of gender	Has received pushback from students who are just looking for a final grade (also AE related)	*Congruency:* Has only received one negative complaint from a student regarding use of AL in class
• *Tools* vs. *Subject* o Ultimate lack of conviction about the use and efficacy of SCL	The tensions in the system served to compound her lack of conviction that SCL could work	The tensions in the system served to compound his lack of conviction that SCL could work	The congruences in the system served to mediate her belief that SCL could work.
Level of Appropriation during TFITA – first microteaching	Appropriated surface features	Appropriated surface features	Appropriated conceptual underpinnings
Level of Appropriation during TFITA – final microteaching	Appropriated conceptual underpinnings	Appropriated conceptual underpinnings	Appropriated conceptual underpinnings
Level of Appropriation of SCL *tools* post TFITA course	Appropriated conceptual underpinnings	Appropriated conceptual underpinnings	Mastery

The three cases of Maria, Neel, and Sara provide an interesting opportunity for a more in-depth examination of the various ways that systemic tensions and congruences can affect appropriation of teaching *tools*. In their discussion of the use of activity theory (and therefore, CHAT) to understand the teaching practices of new teachers across settings, Grossman et al. (1999) write:

> Activity theory can, therefore, help account for changes in teachers' thinking and practice, even when those changes differ from case to case. Rather than seeking a uniform explanation for the reasons behind teachers' gravitation to institutional values, an approach grounded in activity theory is more concerned with issues of enculturation and their myriad causes and effects. From this theoretical perspective, then, the question is not to discover a single cause that accounts for all change, but rather to ask, "Under what circumstances do particular kinds of changes take place?" (p. 4).

In comparing and contrasting the experiences of these three participants, we are able to get a clearer picture of the importance of understanding the often unique factors that can either promote or hinder the teaching practices of ITAs in higher education in the U.S. in an effort to find out under what circumstances ITAs appropriate *tools* such as SCL for use in teaching.

Outcome (Goals)

To begin with, Maria, Neel, and Sara all shared a stated desire to utilize SCL in their teaching. Despite this, only Sara was able to fully appropriate it, while Maria and Neel were only able to implement it on a limited basis. In Maria's case, she not only wanted the students to be able to know how to do the math, she wanted them to be able to take their knowledge and build upon it on their own using critical thinking skills. For Neel, his initial desire to make sure the students "learned" statistics changed over the course of the semester. The first change involved his recognition that many of his students were fearful of statistics, and mathematics in general,

inhibiting their acquisition of statistics, leading Neel to modify his goal. Instead of just covering the required curriculum, Neel became determined make sure that the students were not only unafraid of statistics, but could see it is something useful to them in the future. Sara's goals changed in a similar way over the course of the semester. Being assigned a class that she did not feel comfortable teaching initially due to her lack of knowledge of the subject, she started the semester with the utilitarian goal of wanting the students to "you know, see different perspectives" and said, "I don't know how I'm going to teach. It's just on gender and race. So just like teach like whatever. Let's say something in front of everyone and like get it done". By the end of the semester Sara's goals had evolved and her desired outcome was to have the students be able to not just understand that people have different perspectives, but to be able to think more critically about the subjects of race and gender, "to have them *think* is the goal". In the following discussion, I will compare the experiences and perceptions of the participants in an effort to better understand the question posed by Grossman et al. (1999), namely, "Under what circumstances do particular kinds of changes take place?" (p. 4).

Sociocultural History

Maria, Neel, and Sara all shared an apprenticeship of observation in educational settings that were hierarchical and teacher-centered. As can be seen, however, this alone was not a precluding factor for their desire to adopt SCL, and specifically in the case of Maria, a negative experience in that setting was the genesis of her interest in SCL. The difference between the three, in this case then, was the timing of their first experience with SCL pedagogy. In Maria and Neel's cases, their first exposure to the concept of SCL and its related tools was during the TFITA program. Sara, on the other hand, had previously thrived in a SCL-type program as a student during her second bachelor's degree and master's degree while still in Japan. It can be

surmised that Sara's previous positive exposure to SCL as a student made her more open to its effectiveness and use as an instructor. Additionally, Sara's comfort level with the culture of the students, visible in her teaching style, allowed her to comfortably use the more interactional style inherent in SCL than Neel, for example, who felt limited in his interactions with the students due to his perceived lack of knowledge about their culture.

Tools vs. Rules

While both Maria and Neel felt that they didn't have the time to prepare and implement SCL, Sara felt that it took her less time to prepare than a lecture. For Maria and Neel, this was compounded by the fact that they did not have departmental models of SCL-type teaching to use a model for their own teaching. Both also worried that if they took the time to implement SCL pedagogies, that time would not be recognized in a positive fashion in their department since it was not part of the culture of teaching in either. For Neel, however, there was some support in the form of the SCL focused slide-deck created by his peer. Due to the presence of this slide-deck, Neel was able to utilize some SCL *tools* without needing to spend additional time on his teaching. Sara, as counterpoint, reflected that her department was becoming more SCL focused and had observed this type of teaching for an assignment during the TFITA program. She also stated that the new program for teaching assistants in her department emphasized SCL pedagogies, strengthening her confidence that her using it would be seen in a beneficial light.

A second important distinction between the three participants is their field of study; Maria and Neel are in STEM fields, while Sara is in the social sciences. While research has shown the applicability and desirability of using SCL methods in undergraduate STEM courses (Braun et al., 2017; Freeman et al., 2014; Haak et al., 2011), the use of lecture persists, with the need to cover a large canon of knowledge being given as one of the largest deterrents to utilizing

SCL tools such as AL (Deslauriers et al., 2019). On the other hand, while involving complex issues of race and gender, the class that Sara was teaching did not have an extensive canon of facts that she needed to cover with the students. In line with research showing that instructors often resist using SCL due to this fact (Deslauriers et al., 2019), it can be surmised that this made it easier for Sara to incorporate SCL into her teaching.

Tools vs. Division of Labor

In regards to the *tools* vs. *division of labor*, Maria and Neel both shared that their perception that the students were critical of SCL was a factor in their decision to limit their use of it in their teaching. Both discussed the pressure they felt as instructors in an educational system in which the students (or their families) paid a premium for their education. This was compounded by their surprise at the sense of academic entitlement the students exhibited in pushing back against their attempts to use SCL *tools*. Research by Deslauriers et al. (2019) backs up Maria and Neel's perceptions regarding inherent student bias against the use of SCL based *tools* in the classroom. This is particularly compounded by issues of gender in the case of Maria as a novice, female post-doc on the job search at the time of the study. In a 2018 study, El-Alayli et al. concluded that "women must work harder to demonstrate both warmth and competence merely to be rated equally to their male peers, and they are more susceptible to negative reactions from others in both domains." (p. 138). Working in an environment in which the student evaluations could affect her job search, compounded with their dislike of even the minimal SCL *tools* she was already using, it can be conjectured that Maria ultimately felt that she could not risk using more SCL in her teaching at the risk of angering the students.

Once again acting as the counterexample, Sara reported that had only received one complaint about her extensive use of SCL *tools* in her teaching practice. This is supported by my

observations of Sara teaching and using AL in which the students were actively, and at least on the surface, happily involved in the course material. Without the presence of negative student responses to the use of SCL, it can be surmised that Sara did not feel the same pressure to adhere to traditional, lecture-based methods. Additionally, Sara already knew at this point that none of her teaching experience, and therefore student evaluations, would be considered in her job search in Japan, perhaps giving her free rein to utilize her preferred pedagogy.

Summary

Ultimately, both personal sociocultural factors and systemic issues provided tensions in Maria and Neel's Activity Systems that served to restrict their complete appropriation of SCL in the classroom. Contrary to Maria's and Neel's experiences, however, Sara's sociocultural factors and systemic issues provided enough support to mediate her mastery of SCL. In Chapter Four, the experiences and perceptions of all eight participants served to highlight the challenges they felt in appropriating SCL, with Sara almost continually serving as an informative counterexample. The tensions and congruencies that were discussed by the participants in Chapter Four were then illustrated through the in-depth examination of Maria, Neel, and Sara in Chapter Five. In the following chapter, Chapter Six, I will examine five overarching themes that were identified from the data from all eight study participants.

CHAPTER 6: RESULTS OF ANALYSIS OF STUDY PARTICIPANTS

This project focused on the teaching practices of ITAs and one former ITA in the context of higher education in the U.S. While each case is unique, examination of the similarities and differences between the eight participants in this study is useful in providing insight into the adoption or lack thereof of SCL by ITAs. The use of CHAT as a theoretical and analytical framework facilitated the identification of the personal and systemic constraints, (present as tensions in the activity systems within which each of the participants operate), on the participants' adoption of SCL in their teaching practice. In analyzing these tensions, I identified five overarching themes that help to explain the participants' perceptions of SCL, and influenced the degree to which the participants did, or did not adopt SCL in their teaching practice. In this chapter I will describe the thematic findings derived from the CHAT analysis, and in Chapter Seven, I will discuss the implications of these findings and provide recommendations for future ITA program development.

Entering into this project I was unable to find any specific research into the adoption of SCL by ITAs. Research that has been done on the topic of SCL in higher education has focused either on its benefits to students or on its use by faculty and TAs (Armbruster et al. 2009; Brownell & Tanner, 2012; Dancy & Henderson, 2005; Dancy & Henderson, 2007; Freeman et al., 2014; Tsui & Gao, 2006). Extrapolating from this research, I expected the participants in this study to express issues with time as well as departmental support (Dancy & Henderson, 2007; Henderson & Dancy, 2007). Additionally, based on research looking at cultural and linguistic issues of ITAs and teaching in the U.S. higher education context (Luo et al., 2001; Tang &

Sandell, 2000), as well as personal experience in teaching the TFITA course, I was prepared for some of the participants to be dismissive of SCL techniques. However, in the course of this study what I found was that while some of my pre-conceived notions were accurate, there were also many features that I discovered that were surprising. I found was that there were five overarching themes to emerge from this case study on the use of SCL by ITAs:

1. The participants' stated belief in the conceptual theory of SCL does not necessarily translate in to practice.
2. The participants' beliefs about the time needed to plan and implement SCL acted as a barrier to its use.
3. The lack of departmental guidance, role models, or explicit departmental approval impedes SCL appropriation.
4. The participants perceived that the academic entitlement of students made it difficult to appropriate SCL.
5. The participants' sociocultural histories and personal goals and expectations influenced their appropriation of SCL.

In my analysis of the data, and the tensions that became evident therein, I became aware that the two research questions that I was using to guide this study were inextricably linked. My first question, which asks how the participants decided what practical *tools* to appropriate in their teaching practice, could not be considered separately from the second question, which asks how they perceive and understand the factors involved in their appropriation of *tools* to use as instructors. In other words, the participants' decision-making regarding what *tools* to use in their teaching could not be separated from what they perceived as influences on their decision-making process. For example, many of the participants felt that SCL required too much time to plan and

implement. This, then, is not only a perceived influencing factor, but it became part of their decision-making process. Due to this, a number of the themes overlapped in their application to both research questions.

In making a decision about how to best address this issue, I decided to maintain the two questions as separate, but interrelated. As such, the theme that addresses Research Question 1, namely the fact that the participants' stated that they would like to use SCL in their teaching, serves as a lens in which to view the systemic tensions revealed in the themes that address Research Question 2.

Research Question 1: **How do ITAs and former ITAs decide what conceptual and practical tools to appropriate in their teaching practice?**

Theme 1: Stated Belief in the Conceptual Theory of SCL

During the interviews, all of the participants stated a belief in the conceptual theory of SCL. While a stated belief in SCL among the participants was unanimous, the extent of that belief was not. For example, Maria was very enthusiastic about SCL and felt that "it would empower the students to kind of take charge of their learning, which I think it's a good idea. So, it seems like a great idea", while Lia was much more conservative in her belief. She saw some benefits to its use, but also strongly felt that using SCL required too much "hand-holding" for the students:

> For me, as somebody who worked very hard on that discipline in that you have to work hard for yourself and nobody is going to take your hand, I feel like this is a lot of holding someone's hand. I feel like you are adults, why do I have to do these exercises so that you will be learning? Can't you learn that by yourself? Why do I have to be your babysitter so that I'm sure that you get the knowledge? You should study for yourself; you should have

the discipline. I shouldn't be the one helping you this much so that you can have the information. You should do this on your own, and if you don't, then you're not cut out to be here. Which is maybe a horrible sentiment, but that's the kind of culture where I come from. If you don't work hard enough, well, you're not meant for university. You shouldn't be here. I feel like often we are driving the students through a course, helping them as much as we can so that they will get a passing grade while in some cases they shouldn't deserve a passing grade just to show up and sit there.

Generally, the stated beliefs for the remainder of the participants fell between the two extremes of thought that SCL is a means to empower students, or that it required too much work from the instructor and not enough from the students.

As expected, the participants' stated beliefs in SCL were not the only factor in their decision-making process, and indeed, it did not necessarily equate to the participants' level of appropriation of SCL. Much of the discrepancy between belief and practice is due to the tensions created by obstacles in their activity systems, discussed further below. In their research on systemic constraints on research-informed teaching practices by physics instructors in higher education, Dancy & Henderson (2005) found that inconsistencies between belief and implementation are common and unsurprising. Adapting a theoretical model to describe and understand discrepancies between stated beliefs and behaviors in regards to racial discrimination developed by Warner and DeFleur (1969), Dancy and Henderson (2005) theorized a similar framework for understanding discrepancies between the stated beliefs of instructors and their actual teaching practice. As they state, "In this model, practice is consistent with belief when situational variables support the practice but may be inconsistent when situational variables are in opposition to a particular practice." (p. 114). Using this quote as a lens, I will now discuss how

the situational variables in the participants' activity systems act as barriers to their appropriation of SCL in their teaching practice.

Research Question 2: **How do the ITAs and former ITAs perceive and understand the factors (both positive and negative) involved in their appropriation of tools (both conceptual and practical) to use as instructors U.S. classrooms?**

In the previous theme I discussed the fact that all of the participants in this study believed that the *tool* of SCL held positive potential for student learning, even if variable in their level of belief. Through interviews and observations, however, it became apparent that most of the participants were not able to consistently use SCL in their teaching practice, with the notable exception of one participant. The following themes expose the systemic tensions, and congruences, that either constrained or supported their appropriation of SCL in their teaching practices, as perceived by the participants in this study.

Theme 2: Beliefs About Time to Plan and Implement SCL

With the exception of Sara, all of the participants believed that planning for and implementing SCL would be too time-intensive, a commonly held belief in higher education (Brownell & Tanner, 2012; Dancy & Henderson, 2005; Dancy & Henderson, 2007; Felder & Brent, 1996). In discussing the pressure to balance his responsibilities as a graduate student and teaching, Neel was willing to be candid when he said, "I'm trying to spend as little[time] as possible, like bare minimum, on teaching to like... yeah. So that's my strategy: spend as little on teaching as possible so that I get time to do other things." Additionally, most of the participants felt that their department emphasized research over teaching, and therefore perceived that extra time spent on teaching would not benefit them, another commonly held belief in academia (Kahveci et al., 2008).

Related to the belief that the use of SCL takes additional time to prepare and implement, the participants identified the need to cover all of the material in the pre-determined curriculum as an added tension, another commonly held belief among instructors (Fagen et al., 2002; Henderson et al., 2005; Pundak et al., 2009; Silverthorn et al., 2006). In their 2007 study of physics instructors and SCL instruction methods, Dancy and Henderson also identified this obstacle:

> Expectations of Content Coverage: Instructors may forgo research-based methods that are geared toward deep understanding if they feel they must cover a lot of material. Likewise, they may change their instruction if this expectation is diminished.

Maria provided a good example of this in her reluctance to fully utilize SCL in her math classes, while it was the pedagogical focus in the summer camp she co-founded. When asked the reason for this discrepancy, she responded that she felt powerless to change the curriculum, because while there were no academic expectations for the students in the summer camp, there were academic consequences for her university students if the SCL methods did not work, “So, there's a lot more stakes related to degrees, grades, and just material that they need to know to move forward that it's just not true at camp.”

Difficulty in using SCL with lower level classes was also discussed by many of the participants. As an example, when asked what she needed to do differently between a lower level and a higher one, Sara, the participant who exhibited the highest appropriation of SCL among the participants, answered:

> So, the questions that I ask are more basic and slower, move forward slower. The 400 level usually understand basic terms and that becomes a spring board for a more in-depth

> conversation. Where, at the 100-level experience, it becomes more basic and slower. I can't rely on their previous knowledge, because they don't have one.

As a result of these time constraints, the participants felt limited in their ability to use SCL in their teaching, particularly with lower-level classes.

Theme 3: Departmental Influence on Teaching Practices

The use of CHAT gives context to the culture that exists within departments and fields of study that often seem to undervalue the importance of formal teaching preparation, and centers the authority in determining teaching practice within the department. Despite having a conceptual belief in SCL, many of the participants reported hesitancy in using it due to lack of departmental guidance or role models. Reflecting on what he felt were obstacles to his use of SCL, Neel said, "I was not sure in my ability to actually implement it though. Maybe I was scared." Neel's fear about using what would be a new pedagogy in his department, despite research supporting it as best-practice, underscores a key tension in higher education, particularly in the STEM fields, "that embracing a teaching identity as part of one's scientific professional identity can be perceived as a liability and something to be hidden." (Brownell & Tanner, 2012, p. 34)

In considering TA training and pedagogical change, the influence of the department is pivotal. Dancy and Henderson (2007) have found that if traditional teaching methods are the norm in a department, and there are no role models to follow or be supportive, it is unlikely that new teaching methods will take root. Further, research has found that as novice teachers with low levels of self-efficacy, it is essential for TAs to receive departmental support in teaching methods: (Ashavskaya, 2015; Austin, 2002; Chiang, 2016; Fagen et al., 2002; Grossman et al., 1999; Kurdziel et al., 2003). In addition to faculty, and as was discussed specifically by Robin in

the talk she received from a fellow TA about teaching responsibilities, the participants were not only taking their teaching cues from departmental faculty and programs like TFITA, they were being influenced by other TAs and graduate students. Specifically, DeChenne et al. (2015) discussed the three departmental teaching climate factors that have an impact on the teaching methods of TAs: a facilitating environment, supervisory relationships, and peer relationships. As a counterpoint, Sara's ability to effectively appropriate SCL in her teaching provides just such an example of the influence of a supportive departmental environment.

The significance of the participants' concerns about lack of departmental support or role models in using SCL provides further evidence that reliance on a single professional development course such as TFITA is insufficient to change an individual's teaching practice without subsequent support to utilize what he or she has learned. The implication for this is a continued reliance on traditional teaching methods in undergraduate education.

Theme 4: Undergraduate Influence on Teaching Practices

The phenomenon of Academic Entitlement (AE) and Academic Consumerism (AC) (Sohr-Preston & Boswell, 2015) were brought up as obstacles in their appropriation of SCL by seven of the eight participants in this study. While the issues of AE and AC have the potential to affect all instructors, they can be particularly shocking for ITAs and faculty from cultures where a university education is either low cost or free, and the instructor is the undisputed authority in all aspects of the class. Maria related, "You do whatever it is that they're telling you to do, and, if you got a bad grade, it's because you didn't study enough. And then you move on." Particularly due to the influence of AC, some participants like Robin and Daniel, viewed the students as consumers as well as learners. In Robin's case, due to her unease with her ability to implement

SCL, this meant reverting to lecturing despite a conceptual belief in SCL. When asked about what influenced her teaching decisions, she commented:

> Like, if a TA really has authority or not, or student as the boss in college. You really pay a lot for this school thing, which also makes me feel a little bit burdened, because you pay a lot. If I didn't do my job good, well, I feel guilty. You pay a lot and I wasted your 50 minutes.

For Maria, who felt too constrained by systemic tensions to fully appropriate SCL, even her limited use of AL-type homework assignments was met with resistance from the students. Her experience is congruent with the research on the use of SCL and AE, AC, and grade-orientation as a student disposition. In their study of AE as a predictor of instructional beliefs and learning outcomes, Vallade et al. (2014) laid out the inherent elements of AE:

> Several attributes are subsumed within the construct of academic entitlement, including an expectation that knowledge will be delivered to students while requiring a minimum level of effort or discomfort on behalf of the student, that an education will be provided by individuals other than the student, problems in learning are due to inadequacies of the instructor, the course, or the system (not the student), students should have control over classroom policies, and students deserve positive educational outcomes (i.e., high grades) because they or their parents pay tuition. (pp. 500- 501)

Grade-orientation has also been identified as a characteristic of AE (Vallade et al., 2014). As opposed to learning-oriented students who are motivated personally and professionally by the intrinsic value of their education, grade-oriented students are predisposed to view their college classes in an instrumental fashion, and as a means to an end (Eison et al., 1986; Vallade et al., 2014). Additionally, and importantly in the discussion of SCL, grade-oriented students have been

linked with lower levels of participation and a dislike of collaboration with classmates (Eison et al., 1986).

The connection between elements of AE, AC, and grade orientation is particularly relevant in light of the fact that many of the traits associated with these phenomena are at odds with the practical tools utilized to implement SCL. Researchers studying student resistance to SCL have found that many students do not like the additional cognitive demands and peer interaction that are central to SCL (Dancy & Henderson, 2005; Dancy & Henderson, 2007; Fagen et al., 2002; Turpen et al., 2010). In a study of students' self-reported learning in classrooms using AL, Deslauriers et al. (2019) found that students in the AL class perceived that they had learned less than students in a traditional lecture format class, despite the opposite being true:

> Students in active classrooms learned more (as would be expected based on prior research), but their perception of learning, while positive, was lower than that of their peers in passive environments. This suggests that attempts to evaluate instruction based on students' perceptions of learning could inadvertently promote inferior (passive) pedagogical methods. For instance, a superstar lecturer could create such a positive feeling of learning that students would choose those lectures over active learning. Most importantly, these results suggest that when students experience the increased cognitive effort associated with active learning, they initially take that effort to signify poorer learning. That disconnect may have a detrimental effect on students' motivation, engagement, and ability to self-regulate their own learning. (p. 19251)

The participants' perception that AE and AC had influenced their appropriation of SCL is significant when considered with research findings that show that students are likely to show

resistance to its use. This, along with the other systemic tensions, can make it difficult for an ITA to feel confident in using SCL.

Theme 5: Influence of Sociocultural Histories, Personal Goals, and Expectations on Teaching Practices

In their study on the teaching practices of teaching interns, Grossman et al. (1999) found that the apprenticeship of observation, cultural backgrounds, and personal goals and expectations affect the ways in which teachers develop their teaching beliefs and practices. The subsequent finding that the participants' sociocultural histories influenced their appropriation of SCL is unsurprising. What is interesting, however, is that while the participants' apprenticeship of observation did influence their teaching, it was not always in a way that one would expect. For example, while Maria's experience as a student in Italy was in a traditional, lecture-based environment, it was her negative experience in that environment that led to her desire to implement SCL, even if systemic forces limited her appropriation. In another example, Sara, who was educated in a traditionally hierarchical, lecture-based system for most of her life, was introduced to SCL while still in Japan by a Japanese professor who had been educated in the U.S. This mediating factor, along with the other mediating factors in her activity system (departmental support for SCL, fluidity with the English language, American culture, and humor) positively influenced her usage of SCL. In another interesting example, the sports-dominated culture of Regional University presented a barrier to Neel, who felt that his lack of understanding of the culture prohibited both interpersonal connections with the students and his ability to use the students' culture for examples in his teaching. While this may, at first, seem trivial, an instructor's ability to utilize relevant aspects of students' culture is an increasing expectation for millennial students (Price, 2010).

The personal goals and expectations of the participants also influenced their appropriation of SCL. As seen in the example of Lia, the fact that her career goals did not including teaching, coupled with her apprenticeship of observation in a traditional, lecture-based educational environment, served to limit her ultimate appropriation of SCL despite being in a department supportive of its use. In the case of Arun, despite his uncertainty whether he would pursue a job in academia or industry, the possibility that he might become a teacher was enough for him to take the extra time needed to re-vamp the Statistics department slide deck for his Intro to Stats class.

Summary

The use of CHAT methodology permitted the identification of themes important in influencing the adoption of SCL by ITAs. Student centered learning is perceived to be an effective approach to teaching by ITAs, but adoption of the SCL methodology is limited among the participants interviewed for this study. I identified five themes common among the participants that provide insight into the factors important in determining the extent of adoption of SCL by ITAs. Each of the themes in this case study contribute to the existing literature on the challenges faced in the effort to utilize SCL in higher education in the U.S., as well as additional challenges faced by ITAs in that same setting. While much of the current ITA literature focuses on ITA-specific teaching challenges, the narratives shared in this study shed light on the larger, systemic issues that should be considered when developing ITA pedagogical training programs.

CHAPTER 7: DISCUSSION AND CONCLUSION

This chapter will explore the implications this research has in regards to the appropriation and use of SCL by ITAs in undergraduate education in the United States, as well as the role of academic departments, undergraduate students, and the ITAs themselves. Following the discussion and presentation of implications, recommendations will be presented. Finally, limitations of the study, and suggested areas of future research will be presented and discussed.

Despite a small decline in the number of international graduate students enrolling in U.S. colleges and universities since the 2016 U.S. presidential election (Hazelrigg, 2019), ITAs continue to represent a significant percentage of instructors in undergraduate courses, particularly in the STEM fields (Anderson, 2013; National Foundation for American Policy, 2017). At the same time, continued research on best teaching practices has reinforced the effectiveness of SCL-based pedagogies and tools across both STEM and non-STEM fields (Ambrose, 2019; Freeman et al., 2014; Laird et al., 2008; McCarthy & Anderson, 2000). The purpose of this study was to explore the factors that may affect ITA appropriation of SCL-related pedagogical tools in their teaching from the perspective of the ITAs after participation in a course designed to prepare them to teach in a U.S. college classroom.

This qualitative case study focused on seven current ITAs and one former ITA representing seven countries and six fields of study (four STEM, four non-STEM). Data collected from the participants included interview data, with additional observation data collected from three participants. Document analysis was also performed on information provided by the participants such as teaching statements and relevant course syllabi. Documents

in relation to the TFITA course were also collected and analyzed in an effort to establish an understanding of the participants' exposure to SCL prior to their teaching. Additionally, recordings of the participants' microteaching assignments were reviewed and analyzed as an additional point of data.

Data analysis was performed both during and subsequent to data collection. Data was analyzed first in an inductive fashion, and then using Cultural-Historical Activity Theory (CHAT) as a theoretical and analytical framework. From the CHAT analysis, major areas of tensions and congruences were documented. In Chapter 6, significant thematic findings and their connection to relevant literature were discussed. The implications of this study, as well as suggestions for further research, are discussed below.

As stated above, the purpose of this descriptive case study was to explore the factors that ITAs and former ITAs perceive as important in their decision making regarding their teaching practice, specifically in regards to SCL. Two research questions were answered and discussed:

1. How do ITAs and former ITAs decide what conceptual and practical tools to appropriate in their teaching practice?
2. What do the ITAs and former ITAs perceive as the factors involved in their appropriation of SCL tools (both conceptual and practical) to use as instructors in U.S. classrooms?

Implications and Recommendations

Implications and recommendations emerged from this case study of ITAs and former ITAs and the factors they perceived as affecting their appropriation of SCL concepts and tools in their teaching practice. As presented in Chapter 6, the findings of this case study included:

1. While on a spectrum, all participants shared a stated belief in the conceptual theory of SCL.

2. In general, all of the participants felt the use of SCL would require more time to plan and implement, and current time structure did not give enough time with the given curriculum.
3. A majority of the participants noted a lack of positive departmental influence on the use of SCL.
4. A majority of the participants saw the AE of the undergraduates as a negative factor in their appropriation of SCL.
5. The participants' sociocultural histories, personal goals, and expectations influenced their appropriation of SCL in both negative and positive ways.

Based on these findings, the following implications will be discussed and recommendations made. Additionally, while some research has documented that ITAs felt that they faced significantly more issues in teaching than native-U.S. born TAs (Swan et al., 2017), the findings of this study only partially support this. The implications from the major findings in this study point to the need for extended training and support for ITAs focused on the particular linguistic concerns, cultural issues, and pedagogical challenges they face.

Theme 1: Stated Belief in the Conceptual Theory of SCL

As previously discussed, while on a spectrum, all of the participants in this study shared a conceptual belief that pursuing best practices for teaching in their field meant appropriating SCL in their teaching practice. The results of this study show that teaching practice, however, can only be consistent with pedagogical belief when systemic and situational variables support its use, instead of constrain it (Dancy & Henderson, 2005). In their study utilizing CHAT to study chemistry professors' appropriation of new pedagogical tools, Kahveci et al. (2008) noted the importance of recognizing the limits of individual beliefs when working in a larger system:

> While fundamentally important, a sole emphasis on teacher beliefs leaves the reader to focus only on the teacher as the unit of change—thus placing responsibility for change on the individual or individual(s) as it removes responsibility from the greater structural and cultural features of schooling to support, permit, and foster change. (p. 327)

The TFITA program in this study met the criteria that Zhou (2009) posits are needed in an effective ITA program, namely an emphasis on linguistic and communication skills, pedagogy, American culture and diversity, learning as a shared responsibility, and a focus on seeing foreign perspectives as an asset. However, this was not enough to bridge the multitude of systemic tensions that the participants faced when attempting to appropriate SCL in their teaching practice.

The following findings were previously identified as some of the tensions in Chapter 6 as impeding the participants' appropriation of SCL. Implications and suggestions will be made in relation to each finding. Implications and suggestions regarding Theme 2 (tensions regarding time), and Theme 3 (departmental influence on teaching practices) are interrelated and will be discussed as one.

Theme 2: Beliefs About Time to Plan and Implement SCL *and* ***Theme 3: Departmental Influence on Teaching Practices***

The participants perceived that pressures regarding time, whether the general pressures the participants felt as graduate students (or as a post-doctoral fellow in Maria's case), or the more specific pressures they felt in regards to the additional time needed to plan and implement SCL, were coupled with the message they received from faculty and peers that time spent on teaching was not as valuable as time spent on research. This perception was compounded by the fact that the participants, and most TAs in general, are tapped to teach the lower level courses in

their departments, which the participants perceived to be the hardest group with which to use SCL methods. This tension highlights a serious contradiction between the participants' teaching practices and research that shows it as best-practice in the retention of women and minority students (Estrada et al., 2016; Felder & Brent, 1996; Laursen et al., 2014) and in mitigating the achievement gap between advantaged and disadvantaged students in introductory STEM courses (Haak et al., 2011). The contradiction between the belief that it is more difficult to use SCL in lower level courses and research that shows that it is one of the most effective teaching methods to ensure retention of underrepresented groups in STEM is troublesome in its implications.

Additionally, the participants reported differing departmental influences on their use of SCL. These ranged from Neel, Arun, and Sam's department in which there was only "a report" that one of the new faculty used SCL methods, to Lia's department in which none of the faculty used it but expected TAs to be the ones to implement it, which in turn contrasted with Sara's department, where she saw it being used by faculty and peers and therefore felt comfortable in its use. Taken together, the tensions regarding time and the influence (either positive or negative) of the department were powerful influencing factors on the participants' teaching practices, particularly in regards to SCL.

The following suggestions are made with an eye towards ameliorating the conditions that create a "two-worlds pitfall" for TAs/ITAs regarding time and the influence of their academic department in their appropriation of SCL.

Recommendation. Provided there is departmental commitment to the increased use of SCL in its undergraduate classes, DeChenne et al. (2015) found three departmental teaching climate factors to be particularly influential on TA teaching practices: a facilitating environment, supervisory relationships, and peer relationships. Suggestions to support these factors include:

- Department-created curriculum for lower-level, foundational courses most likely to be taught by TA/ITAs. In creating a SCL based curriculum for those classes most likely to be taught by TA/ITAs, departments would makes strides towards ameliorating five immediate tensions: 1) minimizes the time that TAs/ITAs need to dedicate to teaching, leaving more time for their student responsibilities; 2) provides good examples of SCL-based teaching for the TAs/ITAs; 3) ensures that the curriculum content is consistent with the time required for SCL implementation; 4) provides confirmation for the TA/ITA that the use of SCL is approved and supported by faculty; and, 5) provides consistent instruction for undergraduates in foundational courses.
- Department-specific, long-term professional development courses (PD) for TAs and faculty focused on pedagogy. Research has shown that long-term (at least one semester) PD along with departmental support is required for sustained change in pedagogical practices (Ebert-May et al., 2011).

A larger systemic tension cited by the participants was the pressure to prioritize research over teaching, particularly in R1 schools such as Regional University, a long-recognized issue in higher education (Ebert-May et al., 2011; Hopwood & Stocks, 2008). If institutions are committed not only to ensuring access for diverse students, but also to their retention, particularly in the STEM fields, they need to prioritize the use of SCL in the classroom. In order to make this happen, they will need to incentivize teaching and provide institutional support, including both standardized pedagogical training and training specific to each department/field.

Theme 4: AE and resistance to SCL

As an additional point of tension in the appropriation of SCL, the participants' surprise at the AE of many of their students was compounded by their perception that the students did not favor the use of SCL, making the participants wary of its use for fear of receiving low student evaluations. While the issue of AE is relevant to all instructors and faculty in higher education it was particularly noteworthy to the participants in this study due to their own sociocultural histories in education systems in which there was little student entitlement. Despite this, TAs and ITAs need to recognize the phenomena and utilize strategies to mitigate student disapproval of SCL.

Recommendation. In order to ameliorate some of the issues with student resistance to SCL, Deslauriers et al. (2019) suggest making the goals of SCL clear to the students from the beginning of class:

> As the success of active learning crucially depends on student motivation and engagement, it is of paramount importance that students appreciate, early in the semester, the benefits of struggling with the material during active learning. If students are misled by their inherent response into thinking that they are not learning, they will not be able to self-regulate, and they will not learn as successfully. (p. 19255)

Additionally, Deslauriers et al. (2019) suggest providing early formative assessment so students can gauge their subsequent learning, giving consistent reminders to the students of the inherent value in increased cognitive effort, and providing frequent check-ins (via muddiest point, etc.) to respond to student concerns. In their research on strategies to mitigate student resistance to AL, Tharayil et al. (2018) also found that a combination of explanation strategies about the course (such as the purpose for using AL and recommended activity levels), along with facilitation strategies (such as a warm and engaging teaching presence) helped mitigate students' negative

responses to AL. Further, additional research on reducing student resistance to AL has found that students perceived that facilitation strategies led to increased participation more than explanation strategies (Finelli et al., 2018).

Theme 5: ITA level tensions around sociocultural histories, personal goals, and expectations

While this finding supported previous research regarding tensions that are usually attributed to ITAs in their teaching practices, such as their sociocultural histories, language, and culture (Bauer, 1996; Hoekje & Williams, 1992; LeGros & Faez, 2012; Ross & Krider, 1992), it also revealed the importance of their personal goals and expectations on their teaching practice.

While the participants reported less tension around the use of SCL and their own sociocultural histories, the differences in academic culture between the participants' home culture and that of the United States did affect how they viewed SCL. This was inconsistent across participants, with the example of Maria's experience in Italy predisposing her to a positive view of SCL, while Lia, from Belgium, felt that it required too much-hand holding while still acknowledging its benefits. Other participants, such as Robin and Sam, encountered issues specifically with language and the use of SCL, while Neel and Daniel felt that there were aspects of the American culture that limited its use.

Recommendation. While acknowledging the additional challenges faced by ITAs in the classroom due to their linguistic, cultural, and educational backgrounds (Price, 2010), while also resisting a deficit view of the culture they bring with them to the classroom, researchers have found that increased training for ITAs can help mediate some of these issues (Ashavskaya, 2015; Bresnahan & Cai, 2000; Swan et al., 2017; Zhou, 2009).

Following the findings of this study, I recommend that ITA training programs, as proposed by Zhou (2009), should be mandated for all ITAs in conjunction with and in

collaboration with TA training programs in consideration of consistency in regards to pedagogy and messaging. In following Zhou's (2009) recommendations as to how to make ITA training programs effective, combined with research on best-practices in regards to TA training (Gaia, et al. 2003), I suggest the following elements are essential to the training of ITAs, specifically in regards to the use of SCL:

- The incorporation of pedagogy, linguistic, and cross-cultural knowledge and skills, including:
    - Long-term (semester-length) programming.
    - Exposure to the cultural and linguistic diversity in the United States.
    - Exposure to the concept of AE and strategies to mitigate it.
    - Differentiated training to reflect the needs of individual ITAs (i.e., focus on linguistic, or cultural, or pedagogical needs).
    - Active participation of American undergraduates
- The incorporation of departmental interaction, mentoring, and support, particularly in relation to teaching norms of the department.
    - Ongoing professional development opportunities focused on pedagogical skills providing continuous practice and reflective feedback

Limitations

It is hoped that this study will provide a resource for scholars and practitioners in the field, however it is important to note its limitations. The first limitation to note is that the participants in this study were from multiple departments and disciplines. While this provided a suitable cross-section with which to view the different experiences of each, it also has to be recognized that each participant had a variety of training and support from their departments, in

addition to the overall culture of education in their respective fields. The second limitation was that due to the fact that the data for this study was collected during only one semester, there were a number of participants who were not teaching classes at that time and could not be observed, leaving only three participants to be observed. In addition to this, there were two ITAs who decided not to participate in this study because as foreign graduate students they felt particularly vulnerable to the possibility of being exposed, and perhaps penalized for their opinions, despite IRB precautions put into place. The observer effect is an additional limitation that needs to be considered in this study. First, the participants were made aware of the focus of this study by me both in the recruitment email and in our pre-interview discussion, as well as by the wording of the IRB consent form they signed prior to participating in this study. As discussed by Bogdan and Biklen (2007), it is difficult to know the extent that the researcher's agenda changes the behavior or answers of a participant. This is compounded in this case as I was the TFITA instructor for a number of the participants who were aware of my interest and belief in SCL as pedagogical best practice.

Suggestions for future research

Despite a plethora of research about ITAs, from the need for ITA training programs (Bailey, 1982; Fitch & Morgan, 2003; Orth, 1982; Subtirelu, 2015), to the composition of those programs (Zhou, 2009), and the perceptions of the ITAs from both the undergraduate (Bailey, 1982; Orth, 1982) and ITA perspectives (Luo et al., 2001), there is currently little research specifically about ITA use of SCL in their teaching. As the emphasis on the implementation of SCL grows in higher education in the United States in response to ever-increasing diversity in the college-going population, and in the STEM fields in particular, there is a concomitant need to understand the barriers to its use. While there is a full body of literature regarding this in regards

to faculty (Brownell & Tanner, 2012; Dancy & Henderson, 2007; Fagen et al., 2002; Felder & Brent, 1996; Gibbs & Coffey, 2004; Henderson & Dancy, 2007; Pundak et al., 2009; Silverthorn et al., 2006), the literature is scant in regards to TAs, and in particular, ITAs. Suggestions for future research include:

- Future Research on ITAs and SCL
    - As discussed in this study, the norms of the participants' departments in relation to teaching methods were an important factor in their appropriation of SCL. Future research can look specifically at departmental support for the use of SCL by ITAs, including the use of professional learning communities.
    - While there is extensive research regarding the use of, and challenges to, using SCL in the STEM fields, there is very little research looking specifically at ITA use of SCL in STEM. Future research can look at support for the use of SCL by ITAs specifically in STEM fields.
    - Future research can look at the ways ITA training programs can support ITAs in their use of SCL when faced with limited departmental support, particularly the use of long-term mentors (Swan et al., 2017).
    - There is currently little to no research regarding mentorship of ITAs by international faculty, particularly in STEM fields. Future studies can pair ITAs with international faculty in their department (where available) to examine the ways a mentorship model can influence the teaching practices of ITAs.
    - Future studies can look at the relevance and impact of both ITA (as instructor) and student gender in relation to the use of SCL in particular subject-related cultural contexts.

- Future research can adopt mixed-methods research.

Conclusion

This study contributes to the literature examining ITAs and their perceptions about supports and barriers in their appropriation of SCL in their teaching. As SCL continues to be the focus of pedagogical change in higher education in the United States, it is important to understand the supports needed to implement this change. Research by Ebert-May et al. (2011) found a negative relationship between years teaching and implementation of new teaching styles, meaning that for sustained pedagogical change to occur, instruction and support for novice instructors ideally should occur when they are learning to teach. While all graduate students working as teaching assistants share many of the participants' concerns in their appropriation of SCL (i.e., time, lack of departmental support), ITAs experience an additional layer of tensions. As instructors, ITAs perform a valuable service to many undergraduates in higher education in the United States, particularly in the STEM fields, and should be supported in their teaching practice by their department and institution.

If institutions of higher education are sincere in their intent to increase student persistence and improve outcomes in undergraduate education, understanding and supporting SCL must be a priority. The results of this study would suggest that in order for pedagogical reform to be successful there needs to be departmental support, specific supports for ITAs, and institutional commitment to the development of SCL. If institutions of higher education that are truly dedicated to developing effective educators they need to expend a similar amount of resources in supporting and developing teaching as they do in supporting and developing successful researchers. Without widespread support for and commitment to the implementation of SCL

within institutions of higher learning, there will continue to be limited adoption of best teaching practices by ITAs.

APPENDIX A: INTERVIEW QUESTIONS

Interview Questions - ITAs

Interviews with ITAs and Former ITAs who have previously completed a PITAP class.

1. Where are you from?
2. How long have you been in the U.S.? At this university?
3. What is your current role?
4. What is your perception about the beliefs about education in your home country? Can you provide examples?
5. Thinking back on your undergraduate classroom experiences, can you describe what a "typical" class day was like in your major?
6. How did you choose your undergraduate and graduate disciplines? What attracted you/kept you in the field?
7. What are your career goals?
8. Why did you decide to enroll in a PITAP class?
9. Thinking back to the PITAP class that you participated in previously, have you subsequently used any of the student-centered learning/active learning concepts and tools in your teaching this? Why or why not? Can you give examples of SCL/active learning you use in your teaching?
10. Have you taken any additional training in how to teach outside the PITAP course?
11. In general, would you consider your teaching style to be more student-centered or teacher-centered? Can you give examples? Was this true prior to your participation in a PITAP class?

12. What do you perceive are the biggest influences on your teaching?
13. What are the biggest challenges you face in your teaching role?
14. If you are comfortable in doing this, would you mind comparing the U.S. education culture with that in which you experienced?
15. Do you think that you would change your teaching style or utilize different teaching tools if you were to teach in your native country? Why or why not?
16. Do you feel that there is a difference between your TA experience and that of a typical native-born TA? If so, how?
17. If you were teaching in any capacity this semester (TAing, leading a discussion section or a lab, etc.) did you experience any unexpected difficulties in teaching your class this semester? If so, how did you deal with them?

Suggestions for participants in the PITAP program

1. Based on your professional experiences since the completion of the PITAP class, what advice or suggestions, if any, would you like to offer to your fellow ITAs who shared or will share similar experiences to yours?
2. Based on your professional experiences since the completion of the class, do you have any suggestions for the for the PITAP program?

   Do you have any comments or questions about this interview or the research project?

APPENDIX B : POST-OBSERVATION INTERVIEW QUESTIONS

Post Observation Interview Questions - ITAs

1. Overall, how did you feel about the class I observed? (*Object*)
2. Do you feel that it went as you planned it? Why or why not? (*Instrument/Tools*)
3. What ways that teaching is supported in your department? (*Community and Division of Labor*)
4. How do you feel about your student interaction? (*Community*)
5. How do you feel about the environment you are teaching in? (*Community*)
6. What is your academic life like outside the classroom right now? (*Rules*)
7. During the observation I noticed that…

APPENDIX C: IRB CONSENT

Adult Consent for Interview
University of North Carolina at Chapel Hill
Consent to Participate in a Research Study
Adult Participants
Consent Form Version Date: July 11, 2019
IRB Study # 19-1335
Title of Study: Pedagogical choice in the U.S. college classroom from the ITA perspective.
Principal Investigator: Sharon Shofer
Principal Investigator Department: School of Education Deans Office
Principal Investigator Phone number: (919) 966-7000
Principal Investigator Email Address: shofer@live.unc.edu
Faculty Advisor: Xue Rong
Faculty Advisor Contact Information: (919) 962-9203

CONCISE SUMMARY

The purpose of this research study is to explore the factors that may affect International Teaching Assistant (ITA) appropriation of certain pedagogical tools in their teaching after a taking a course designed to prepare them to teach in a college environment in the U.S. Participants will be interviewed one to two times each, with each interview taking between 1 to 1.5 hours. All interviews will take place between July 2019 and January 2020. Additionally, video files of the participants' microteaching assignments completed in and for the Preparing International Teaching Assistants Program (PITAP) will be viewed by the researcher for additional data points.

The greatest risk of this study is the potential loss of confidentiality for deductive disclosure. Please see document below under "How will information about you be protected?" for information about the steps being taken to minimize this risk.

What are some general things you should know about research studies?
You are being asked to take part in a research study. To join the study is voluntary.
You may choose not to participate, or you may withdraw your consent to be in the study, for any reason, without penalty.
Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.
Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study.
You will be given a copy of this consent form. You should ask the researchers named above, or staff members who may assist them, any questions you have about this study at any time.

What is the purpose of this study?
The rise in number of international teaching assistants (ITAs) in US colleges and universities is well documented. This has often led to the perception by the students who are taught by ITAs that they are not good teachers due to linguistic, intercultural, or pedagogical deficiencies. In response to this, many colleges and universities in the US have created programs to train ITAs to teach effectively in the US tertiary classroom setting. These training programs vary from institution to institution both in duration of program and in content. Despite the curriculum variability, most programs have evolved from having primarily a linguistic focus to include elements of intercultural communication, intercultural competence, and pedagogy. The importance of these elements in training ITAs has been documented in studies demonstrating improvement in ITA teaching experiences following a training program At the same time many, if not most, US colleges and universities have implemented student centered learning (SCL) into their curriculum, with varying degrees of success. In an effort to prepare ITAs for teaching in the US tertiary setting, some ITA training programs have emphasized SCL pedagogy and methods in their curriculum. The extent to which ITAs decide to appropriate these methods for use in their own teaching is the focus of limited studies.

The purpose of this research study is to explore the factors that may affect ITA appropriation of SCL related pedagogical tools in their teaching from the perspective of the ITAs after participation in a course designed to prepare them to teach in a US college classroom.

You are being asked to be in the study because you were or are currently an ITA who has either completed or is currently enrolled in a Preparing International Teaching Assistants Program (PITAP) class.

Are there any reasons you should not be in this study?
You should not be in this study if the classification of International Teaching Assistant does not pertain to you when you took the PITAP class or does not pertain to you currently or you have not completed or are currently enrolled in a PITAP class.

How many people will take part in this study?
There will be approximately 6 to 20 people in this research study.

How long will your part in this study last?
This study will take place during the time period of July 2019 through January 2020. Your part in the study, either one or two interviews with the possibility of one to two observations of you teaching a class will take place during this time period.

What will happen if you take part in the study?
The following activities are required to participate in the study.

- **Interview/s:** you will be asked to participate in one to two interviews of approximately 1 to 1.5 hours each. These interviews are more like conversations and you may choose not to answer a question for any reason. These interviews will be audio recorded and transcribed on paper.

- **Approval to use pre-existing recordings of microteaching lessons:** As per The Family Educational Rights and Privacy Act (FERPA) guidelines, you are being asked for consent for the researcher to view and analyze previously recorded microteaching lessons completed during your participation in PITAP 810. If used as part of the study, all references to your recorded microteaching lessons will be de-identified.

What are the possible benefits from being in this study?
Research is designed to benefit society by gaining new knowledge. There is little chance you will benefit from being in this research study.*

*For participants who are currently enrolled in a PITAP course, the time you are being interviewed may be used toward your PITAP course required 8 hours of English speaking outside of the classroom setting.

What are the possible risks or discomforts involved from being in this study?
There is a possible risk of deductive disclosure as to the identity of participants in this study. Please see "How will information about you be protected?" below for information about how this study will minimize this possible risk.

Neither participation nor non-participation in this study will affect your grades, status in your department, or teaching assistant responsibilities.

What if we learn about new findings or information during the study?
You will be given any new information gained during the course of the study that might affect your willingness to continue your participation.

How will information about you be protected?

- The discipline and/or department of the ITAs will not be referred to, instead they will be classified as either STEM or non-STEM disciplines.
- If the ITA country of origin, once separated into STEM and non-STEM disciplines, is represented by less than ten (10) individuals at UNC Chapel Hill, then the name of the country will not be used. Instead, the general region or continent of the country will be used as a descriptor.
- Not disclosing the name of the university, instead referring to UNC CH as a large, public university in the American South.
- The identities of all participants and the school itself will be kept private in all discussion, written documents, and presentations related to this study. The data will not be used to evaluate the performance of the ITA participants, departments, or the school.

Participants will not be identified in any report or publication about this study. We may use de-identified data and/or specimens from this study in future research without additional consent.

Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies (for example, the FDA) for purposes such as quality control or safety.

- After the data collection and analysis have been completed, all audio recordings will be destroyed.
- Audio recordings may be requested to be turned off at any moment.

Check the line that best matches your choice:

_____ OK to record me during the study

_____ Not OK to record me during the study

What if you want to stop before your part in the study is complete?
You can withdraw from this study at any time, without penalty.

Will you receive anything for being in this study?
You will not receive anything for taking part in this study.

Will it cost you anything to be in this study?
It will not cost you anything to be in this study.

What if you are a UNC student?
You may choose not to be in the study or to stop being in the study before it is over at any time. This will not affect your class standing or grades at UNC-Chapel Hill. You will not be offered or receive any special consideration if you take part in this research.

What if you have questions about this study?
You have the right to ask, and have answered, any questions you may have about this research. If you have questions about the study (including payments), complaints, concerns, or if a research-related injury occurs, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research participant?
All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject, or if you would like to obtain information or offer input, you may contact the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Participant's Agreement:
I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

_____ _____
Signature of Research Participant Date

_____
Printed Name of Research Participant

_____ _____
Signature of Research Team Member Obtaining Consent Date

_____
Printed Name of Research Team Member Obtaining Consent

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